

**Quality of Attachment As a Predictor of Parental Visitation
When a Young Child or Infant is Hospitalized**

**A Thesis
presented to
The College of Arts and Sciences
Drake University**

**In Partial fulfillment
of the Requirements for the Degree
Master of Science**

**by
Jane R. Robinson
January, 1994**

Quality of Attachment As a Predictor of Parental Visitation
When a Young Child or Infant is Hospitalized

by
Jane R. Robinson

Approved by Committee:

Jane L. Rankin
Chairperson

Susan Kashubeck

Susan A. Ostill

Myron Marty
of Dean of the College of Arts & Sciences

1994
.R563

ACC 9235

Quality of Attachment As a Predictor of Parental Visitation

When a Young Child or Infant is Hospitalized

An Abstract of a Thesis by

Jane R. Robinson

January, 1994

Advisor: Jane L. Rankin

The Problem. This study examined factors predicting parental visitation with hospitalized children. It was hypothesized that parental visitation and rooming-in decisions would be predicted by quality of attachment, socioeconomic status, parental anxiety, and family and child characteristics.

Procedure. A total of 101 parents completed the Spielberger Stat -Trait Anxiety Inventory, a 12 item attachment measure based on the Waters & Deane Q-sort, and a demographic questionnaire. The children were 10 months to 4 years old (53 males, 48 females) and were hospitalized for non-surgical illness

Findings. Stepwise multiple regression analyses indicated quality of attachment and socioeconomic status were the strongest predictors of parental visitation.

Parent reported attachment was negatively correlated with state and trait anxiety.

Conclusions. Attachment figures who report insecure attachment visit their hospitalized children less frequently than parents who report secure attachment. Parents with insecure parent / child attachment also report higher levels of both state and trait anxiety.

Recommendations. Further research is needed to better understand parent/child relationships and their role in predicting parental visitation behavior when a child is hospitalized.

Table of Contents

	Page
Chapter One	
Introduction	1
Separation Anxiety and Hospitalization.....	2
Rooming-In: The Amelioration of Emotional Consequences.....	3
Parent Characteristics and Rooming-In	5
Relationship Between Parent and Child Anxiety	6
Rooming-In and the Quality of Parent-Child Relationships.....	8
Literature Review	10
Attachment	10
Early Work: Prelude to Attachment Theory.....	10
Bowlby's Theory of Attachment.....	12
Developmental Model	14
Separation Anxiety	17
The Work of Mary Ainsworth	20
Q-Sort Methodology.....	25
The Attachment Q-Set and Empirical Research.....	27
Current Areas of Study Within Attachment Theory	30
Hospitalization of a Young Child: Relevant Factors	36
Maternal-Child Separation.....	37
Parental Rooming-In.....	43

Parental Anxiety and Hospitalized Children	47
Maternal Anxiety and Rate of Visitation.....	51
Purpose of the Study	54
Hypotheses	56
Chapter Two	
Design and Methods.....	58
Subjects	58
Materials	60
Procedure	64
Chapter Three	
Results	66
Predictors of Visitation Rate.....	66
Predictors of Rooming-In Versus Non Rooming-In.....	69
Predictors of State Anxiety.....	71
Measurers of Visitation by Other Family Members.....	71
Chapter Four.....	74
References.....	87
Appendix A. Informed Consent	98
Appendix B. Demographic Questionnaire	99
Appendix C. Attachment Q-Sort Questionnaire	101
Appendix D. Stait Trait Anxiety Measure Form Y	103
Appendix E. Parental Comments.....	104

List of Tables

Table	Page
1. Means for Rate of Visitation by SES Status.....	68
2. Means for Rate of Visitation by Attachment.....	68
3. Means and Standard Deviations for Rooming-In and Non-rooming-in Parents.....	70
4. SES Rank and Prescence of Significant Other.....	72

List of Figures

Table	Page
1. Regression Model.....	57
2. Quality of Attachment by Visitation Rate.....	69

Dedication

This is dedicated to and in memory of my grandmothers, Ruth Horn and Eileen Robinson, each passed away during the development and completion of this project. Both were women of tremendous strength and integrity to whom I owe much gratitude and appreciation for their unconditional love and influence on my growth and development.

Acknowledgements

First, I would like to acknowledge those people who have served on my committee: Dr. Jane Rankin for her guidance, patience and support in the development and completion of this project; Dr. Susan Isbill, this thesis would never have reached completion if not for her constant support and encouragement. I hope to join her one day in the challenging field of pediatric clinical child psychology, and; Dr. Susan Kashubeck, from whom I have watched and learned the importance of professional integrity both in research and the clinical setting. To these three women I owe much and say thank-you.

Second, I would like to acknowledge the love and continual support of my parents Dr. James and Joann Robinson. They have always supported my life choices and without their encouragement this chapter in my life would have been written very differently. They have never stopped believing in my abilities as their daughter and as a woman.

Chapter I

Introduction

Much has been made recently of the "new pediatrics," which provides for a comprehensive approach to pediatric care. The new pediatrics is not new, but its value has been recognized only recently in many academic centers. The core of pediatric practice . . . has always been the relationship between the pediatrician and the child he [sic] treats, together with the child's parents. It is within the framework of this relationship, with its human, humanistic, and humanitarian qualities, that any therapeutic, preventive, or rehabilitative measures must be taken if they are to succeed. (Prugh, 1983, p. 4)

Not surprisingly, given the "new pediatrics" approach, an expanding field of research within pediatric psychology concerns parental influences, specifically those of the mother, on children's fear and coping behavior during hospitalization. Although empirical evidence on this issue has accumulated since 1953 (Prugh, et al. 1953), only recently has such inquiry attracted the spotlight of attention within the arena of pediatric psychology. Dr. Barbara Melamed, a leading researcher and writer on the subject of hospitalized children, recently stated: "We must take a serious look at how parents' emotions and behavior influence a child's own abilities to regulate frightening and often painful events" (1991, p. 10).

This call for research is better understood in light of the great number of preschool age children hospitalized each year. It is estimated that as many as 5,000,000 American children undergo medical procedures for diagnosis or

treatment each year (Bush, Melamed, Sheras, & Greenbaum, 1986) with infants and children between the ages of 0-5 representing the overwhelming majority of pediatric hospitalizations (Azarnoff & Woody, 1981; Trad, 1987). For sick children who are hospitalized the negative emotional consequences are at best minimal, as evidenced by 1-3 weeks of sleep disturbance and heightened anxiety during separation from the mother (Prugh et al. 1953; Fagin, 1966; Thompson, 1986). As many as one third of hospitalized children experience some type of long-term psychological adjustment problems (Douglas, 1975; Trad, 1987; Wolff, 1969).

Admission to a hospital is also one of the most common reasons for a young child to be separated from his/her parents. And, as will become evident, separation has been identified as a major factor contributing to the psychological upset of hospitalized preschool children (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988; Nagera, 1978; Prugh et al. 1953).

Separation Anxiety and Hospitalization

Separation anxiety refers to the negative affect that follows the departure or loss of an attachment figure (Crowell & Waters, 1990). Children between the ages of six months through four years are considered most vulnerable to the emotional effects of separation and illness because of their symbiotic relationship with the mother, which is coupled with physical, psychological and cognitive immaturity (Bowlby, 1969; Duffy, 1972; Langford, 1961; Nagera, 1978; Prugh et al., 1953; Spitz, 1950; Trad, 1987; Wolff, 1969). Infants under six months of age do not show any apparent ill effects of separation anxiety, in part, because they have not developed protest behavior to the departure of a particular individual (Layton,

Ainsworth, & Main, 1973; Wolff, 1969). However, in the second half year of life, the infant has ascertained important aspects of object permanence and has the ability to maintain a representation of a specific adult even when he or she is out of sight, making separation much more traumatic (Bowlby, 1969; Crowell & Waters, 1990). In addition, the infant has developed an attachment system, that, when engaged, promotes proximity seeking behavior and interaction behaviors organized around a particular figure or figures (Ainsworth, 1967; Bretherton, 1980). It is this separation, or loss of a loved one, that gives rise to separation anxiety.

Most preschool children are likely to manifest separation distress during hospitalization. The child responds to the separation by sustaining a state of tension that serves to disrupt both sleeping and eating patterns (Weiss, 1982). Only the actual presence of the mother or other primary care giver can alleviate the child's anxiety (Wolff, 1969).

Since 1965, when Vernon et al. (1965) identified separation from parents as a major factor contributing to the psychological upset of preschool children, research has sought to determine whether intervention such as parental rooming-in may attenuate the emotional consequences to hospitalized children.

Rooming-In: The Amelioration Of Emotional Consequences

One answer to reducing the emotional upset of childhood hospitalization has been to allow parents rooming-in privileges with their child. Rooming-in occurs when the mother or father remains with the child 24 hours a day during the first two days and at least 10 hours daily from the third day until discharge from the hospital (McGillicuddy, 1976). Other researchers have defined rooming-in as maternal presence for the entire time the child is hospitalized (Fagin, 1966; Brain & Maclay,

1968). The practice of rooming-in or unlimited visitation dates back to the late 1940's (Alexander, Powell, Williams, White, & Conlon, 1988) and currently represents a growing trend throughout children's hospitals and, to a lesser degree, general hospitals.

If, in fact, separation from the parent does induce anxiety, then efforts to minimize separation through parental rooming-in should result in a reduction of the child's psychological upset. However, research concerning the impact of rooming-in on children's immediate or in-hospital reactions has yielded mixed results. Brain and Maclay (1968) found children expressed more favorable in-hospital adjustment when parents did room-in. In contrast, children with rooming-in parents cried with greater frequency during the induction of anesthesia (Lee & Greene, 1969) and were generally more aggressive in the hospital (Lehman, 1975). Lehman (1975), has suggested the increased aggressive behavior may be a reflection of greater security felt by the child in the presence of his/her parents. Finally, Couture (1976) reported no in-hospital behavior differences were found between children with rooming-in or non-rooming-in parents.

In studies of posthospital effects there exists concordance among researchers regarding the positive outcomes of rooming-in. Parental rooming-in has been associated with greater improvement in the areas of separation anxiety, anxiety about sleep, eating disturbance, apathy-withdrawal, overall behavior (McGillicuddy, 1976), regression (Couture, 1976), and a reduction in postoperative complications (Brain & Maclay, 1968; Lehman, 1975).

Parent Characteristics and Rooming-In

Literature regarding the effects of rooming-in on hospitalized children provides the field with abundant information, however studies which aim to assess the role of parent characteristics as they affect the decision to room-in are sparse. Robinson (1968) reported, that as a mother's own fear of hospitalization increased, time spent visiting her ill child decreased. There was also a reluctance of fearful mothers to come in contact with the hospital staff, while proactive behavior towards understanding the child's illness decreased. This same group of mothers were found to be most concerned with their child's grieving or fear as opposed to his/her illness. This lends credence to the findings by Feshbach and Singer (1957) that arousal of fear resulted in a tendency to perceive other people as fearful and anxious.

In a general review of research on parenting, Dix (1991) correlates parents' positive appraisals of self-efficacy and control with an attenuation in negative emotions towards their child. Thus, if a parent infers he/she is incompetent, unable to cope with or control events, stronger negative emotions toward the child will arise. In addition, mothers in a distressed situation (social/emotional problems, depression, relationship problems) evaluate their parenting less favorably than do nondistressed mothers. Dix's 1991 findings of parental self efficacy, in tandem with Robinson's (1968) study displaying maternal anxiety associated with the hospitalization of a child, accentuate why the hospital setting can be a negative experience for child and parent alike. This is especially true in the hospital setting where the parent must surrender certain responsibilities to medical professionals at a time when their child needs their caregiving behavior most. Consequently, parents

may react with feelings of helplessness, which are easily transmitted to the child (Rutter, 1983; Trad, 1987)

Alexander, White, & Powell (1986) studied anxiety levels in non-rooming-in parents. They study found that parents who did not room-in with their young child displayed levels of anxiety that were significantly higher: 1) as the number of children at home increased; 2) as education levels decreased; 3) and as social status decreased. In a subsequent study assessing the anxiety levels of non-rooming-in and rooming-in parents of young (ages 3-8 years) hospitalized children, Alexander et al. (1988) found high levels of anxiety in all parents of hospitalized children. Parental anxiety was shown to correlate positively with the number of children at home, and negatively with: 1) parental education level; and 2) parental social status. Non-rooming-in parents reported higher anxiety than rooming-in parents, both during the hospitalization episode and a week following discharge. If, in fact, hospitalization heightens anxiety in parents, how does this affect the ill child?

Relationship Between Parent and Child Anxiety

Hospitalization of a child is known to create distress and anxiety in parents (Alexander et al. 1988; Robinson, 1968; Thompson, 1986; Trad, 1987). As parents attempt to cope with stressful events in the hospital environment, they have less energy with which to attend to their own needs and the needs of their ill children (Schepp, 1991). Disturbances in children's behavior arising from illness and hospitalization may serve as a clear reflection of parental attitudes and anxieties (Prugh et al., 1953). This contagion of anxiety is unfortunate as it is generally believed that parents have the greatest impact on their children's perceptions of their own vulnerability (Trad, 1987).

The emotional contagion hypothesis states that parental anxiety is expressed to the child through nonverbal and verbal communication and consequently, there are increases in the child's anxiety level. In explaining how or why this elicits child anxiety, the theory gives no specifics (Melamed, Siegel, & Ridley-Johnson, 1988). The hypothesis does have empirical support in studies where correlations between parental and child state anxiety in medical situations are evident. However, this finding could support alternative hypotheses as well, e.g., that anxiety is an inherited predisposition (Sides, 1977). This is of interest to the welfare of the child as parental stress is easily communicated to the ill child with a potentially negative impact on adjustment and recovery (Kidder, 1989).

Bush et al. (1986), in a study of 50 mothers paired with their children who were between 4 and 10 years old, found that the behaviors emitted by mother and child are likely to influence the child's ability to tolerate medical experiences. More specifically, overt maternal agitation was associated with increases in maladaptive child responses. Jessop, Riessman, and Stein (1988) reported a relationship between the functional status of the ill child and the mental health status of the mother; more symptomatic mothers had children with more functional limitations.

The aforementioned studies provide clear evidence of the connection between parent and child anxiety during medical procedures and hospitalization along with their subsequent outcomes. Research is lacking on the impact of the parent-child relationship upon parental decisions to room-in or to not room-in with a hospitalized child.

Rooming-In and the Quality of Parent - Child Relationships

In June of 1957, John Bowlby presented, to the British Psycho-Analytical Society, a paper entitled "The Nature of the Child's Tie to His Mother" (Bowlby, 1958). This presentation eventually led to what is known today as attachment theory. At the heart of the theory lies the child's attachment to the mother. This attachment constitutes a bond, tie, or enduring relationship between the child and his/her mother (Ainsworth, Blehar, Waters, & Wall, 1978). It is developed through attachment behavior, which is any behavior that results in the infant maintaining proximity to some clearly identified individual who is conceived as better able to cope with the world. Attachment behaviors are heightened when a person is frightened, fatigued, or sick (Bowlby, 1982).

The main thrust of empirical research examining Bowlby's theory has focused on differentiating styles or patterns of attachment in young children (Simpson, 1990). Ainsworth et al. (1978) identified and defined three main attachment styles: secure, anxious/ambivalent, and avoidant (also labeled as anxious/avoidant). Each pattern is marked by specific behaviors during separation and reunion with the mother while in a strange situation. The secure child will successfully use the caregiver as a secure base when distressed. The anxious/ambivalent child vacillates between secure type attachment behaviors and overt expressions of protest and anger towards the caregiver. The avoidant child remains aloof towards the caregiver and shows signs of detachment when distressed.

Bush et al. (1986) assessed parent-child attachment through the use of videotaped behavior with children between the ages of 4 and 10. The sample of

behavior was assessed just prior to having a medical examination. Younger children's (less than 5 years, 9 months) behavior was shown to be more interdependent with maternal behavior than was that of older children. The findings showed mothers whose parenting had a more emotive emphasis (agitation, ignoring, reassurance) were likely to have children who were more distressed. Maternal agitation was also associated with high rates of child distress and low attachment. Thus, the child accompanied by an upset mother was unlikely to seek emotional support from the mother. Also, mothers who attended to their children and used high rates of reassurance had children who predominantly exhibited increased attachment behaviors. Those children displaying high rates of exploration maintained low rates of distress. In addition, mothers who provided distraction and low rates of emotional response had children who were less distressed.

We can form initial ideas about the relationship between attachment and maternal responses to a medical situation from the above study. As the parent becomes more anxious the child displays more distress and either becomes excessive with attachment behaviors or extinguishes attachment behaviors all together. How the quality of parent-child relationships relate to actual hospital rooming-in and visitation has yet to be explored. The question then becomes, to what extent do attachment and parental anxiety influence the decision to room-in with the hospitalized pre-school child?

The majority of studies assessing parental anxiety and rooming-in have focused on the dichotomous question of rooming-in or not rooming-in. A further point of interest also arises, that being, rate of visitation. To what extent do attachment and parental anxiety influence, not only rooming-in behaviors, but rate

of visitation? This is ultimately a more sensitive measure than assessing only rooming-in and non-rooming-in behavior.

Literature Review

Attachment

Early Work: Prelude to Attachment Theory

The seminal work of John Bowlby, *Attachment and Loss*, appearing in three volumes in 1969, 1973, and 1980 has provided a heuristic framework for the naturalistic and experimental study of caregiver-infant relationships. The seeds that would later become Bowlby's ethological/control systems theory of attachment began to take root in the late 1940's when a number of clinicians, on both sides of the Atlantic, were making observations of the ill-effects on personality development of (1) prolonged institutional care or (2) frequent changes of mother-figure during the early years of life (Bowlby, 1982). For example, in Europe, Dorothy Burlingham and Anna Freud (1944) published *Young Children in War-Time London*, while in the United States, Rene Spitz (1947) was producing the film *Grief: A Peril in Infancy*. Then, in 1952, James Robertson's film *A Two-Year-Old Goes to Hospital* dovetailed with Spitz's earlier film and their impact was enormous (Bowlby, 1988). The films proved to be powerful instruments for promoting changes within institutional childcare settings while also serving as the impetus that moved John Bowlby to formulate attachment theory (Bretherton, I., & Waters, E., 1985).

Although many childcare professionals in psychiatry and psychology had accepted the research findings and were implementing change, a sharp controversy arose between psychiatrists trained in traditional psychiatry and psychologists who

adopted a learning theory approach (Parkes & Stevenson-Hinde, 1982). The learning theorists pointed to deficiencies in the evidence and to the lack of an adequate explanation of how the types of experience observed could have the effects on personality development that were claimed. Additionally, many psychoanalysts remained unconvinced and were sometimes very critical of the work by such attachment pioneers as Bowlby (1951), Goldfarb (1943), and Spitz (1946), just to name a few (Rutter, 1979).

It was a time of continual change within the field. Bowlby (1982) cites three influential events that served to undermine the opposition and attenuate the criticism that the hypotheses were implausible. First was the publication in 1962 of a collection of articles by the World Health Organization in which Mary Ainsworth, who became a major player in the development of attachment theory, had written one of six articles concerning deprivation of maternal care. In it, she reviewed the extensive and diverse evidence and considered many issues that had given rise to controversy. She also identifying a large number of problems requiring further research. A second event was the publication in the late '50s, of Harry Harlow's work in the United States in which he studied the effects of maternal deprivation on rhesus monkeys. And third, Robert Hinde of the United Kingdom conducted primate studies similar to Harlow's in which the temporary absence of the mother monkey was shown to have negative affects on the behavioral development of her infant. In conjunction with Ainsworth's review, the continuous experimental results from Harlow (1969), along with Hinde and SpencerBooth (1971) undermined the opposition and Bowlby's fledgling theory was no longer considered implausible.

Bowlby's Theory of Attachment:

Attachment theory was given its first preliminary statement in John Bowlby's 1958 paper entitled "The Nature of a Child's Tie to His Mother" (Ainsworth et al. 1978). In developing an ethological/control systems theory of attachment, Bowlby's trilogy on *Attachment and Loss* (1969, 1973, 1980) amalgamated psychoanalytic concepts with ethological methods and evolutionary theory. The result was a new paradigm that comprehended both affective and behavioral facets of attachment (Waters, Kondo-Ikemura, Posada, & Richters, 1990). The relationship that a child develops with his/her attachment figure (usually the mother) is seen by Bowlby as a complex interweaving of reciprocal expectations and behaviors that forms a starting point for later relationships (Parkes & Stevenson-Hinde, 1982).

According to Bowlby (1969), attachment is a tie that binds individuals together over time and space. A person uses another as a secure base from which to explore and as a haven of safety when that other is perceived as better able to cope with the world (Ainsworth et al., 1978; Ainsworth, 1969). This "secure base phenomenon" is regulated by a behavior control system that emerges during the first year of life and influences the organization of affect, cognition, and behavior in attachment relationships across the lifespan (Waters et. al., 1990). Initially however, the behavior systems are relatively independent of each other, emerge at different times, and then become organized toward the mother as the chief object and serve to bind the child to the mother (Bowlby, 1958).

The behavioral system constitutes one of the major features of Bowlby's general theory of behavior. He proposed that human infants' behavior toward their

primary caregivers is under the control of an attachment behavior control system. The attachment system is analogous to control systems that regulate complex adaptive behavior patterns in other species (Waters et al., 1990) and have evolved because their consequences have contributed substantially to species survival (Ainsworth et al., 1978). Here, survival in natural selection means species survival or at least population survival.

In other words, the infant's ability to maintain a degree of proximity or access to adults reduces the likelihood of harm or danger, thus increasing the chances of survival. It is not surprising then to find attachment behaviors most evident when a person is frightened, fatigued, or sick (Bowlby, 1982). Bowlby (1969) described this control system as integrating the following functions:

1. *defining a set goal* that the system uses as a criterion for activation of adaptive behaviors. Bowlby defines the set goal as a degree of proximity or access to the caregiver.
2. *collating information* about the infant's previous experience with the caregiver, the infant's state, the caregiver's location and activities, interesting objects and events in the environment, special cues to danger.
3. *comparing information* about the current state of the infant, caregiver, and environment with the criterion defined by the set goal.
4. *activating behavior patterns* that correct deviations from the set goal and maintain the infant within the bonds defined by the set goal. Critical behaviors here include crying, approach, clinging, and exploration (Waters et al., 1990).

The goal of the control system is to maintain a balance between attachment behavior and exploratory behavior across a wide range of contexts. Bowlby (1969) discussed at length evidence to support his argument that natural selection could account for the presence of such control systems in animal nervous systems. The long period of immaturity in humans implies an extensive period of vulnerability during which the child must be protected. Therefore, the child must be equipped with a relatively stable behavioral system that operates to promote sufficient proximity to the mother or principal caregiver.

Waters and Deane (1985) offer the following concise explanation of the behavioral control system. In a familiar context, and in the absence of what Bowlby terms "natural cues to danger," the balance of the control system favors exploration punctuated by periodic checks on the adult's location. In other situations in which there is increased risk or an association with negative consequences in the infants experience, the balance favors physical contact over exploration. When the control system functions properly, it enables the infant to play an active role in its own behavior and development, facilitating both social and cognitive development.

Developmental Model:

There are four main phases in Bowlby's (1969) development of infant-mother attachment: Phase 1, orientation and signals without discrimination of figure (birth to eight weeks); Phase 2, orientation and signals directed toward one or more discriminated figures (twelve weeks to six months); Phase 3, maintenance of proximity to a discriminated figure by means of locomotion as well as by signals

(six months to 3 years); Phase 4, formation of a reciprocal relationship (about age 4).

Phase 1: Orientation and signals without discrimination of figure. The first phase in Bowlby's model is a brief period of indiscriminating responsiveness. The mechanisms include reflex patterns of grasping, crying, sucking, and other neonatal adaptations that serve a variety of non-attachment related functions and are activated by any person within the infants' vicinity (Waters et al., 1990). There is no implication that the infant has proximity as a set-goal even though these reflex patterns will increase the amount of time the mother spends with the infant. It is as though the infant has an in-built bias to attend to certain patterns, and things which move, and this bias predisposes the child to pay special attention to the human face (Ainsworth, 1969).

Phase 2: Orientation and signals directed toward one or more discriminated figures. -- The second phase describes a period of differential responsiveness and focusing on one or a few figures. As mentioned in Phase 1, the infant's in-built bias to orient toward certain classes of stimuli has, through perceptual learning, caused the familiar to be distinguished from the strange. Consequently, the infant displays differential behavior towards the mother's voice; cries differentially when mother departs as compared to other people; smiles and vocalizes differentially; and maintains differential visual-postural orientation towards the mother (Ainsworth, 1967, 1969).

Phase 3: Maintenance of proximity to a discriminated figure by means of locomotion as well as by signals. -- Phase three constitutes the cornerstone of Bowlby's model. The infant's behavior becomes organized on a goal-corrected

basis as attempts to maintain proximity to a focal figure (usually the mother) through locomotion and signaling are executed with the use of what Ainsworth (1969, p. 1007) labels, "a primitive cognitive map." At this juncture Bowlby (1969) draws attention to the very specific, and critical role evolutionary theory plays in attachment development--that is, attachment arises from interaction between an infant with certain biases in its learning abilities and a responsive mother. Thus, the baby's set-goals are regulated in part by the expectations of the mother's behavior and whereabouts (Ainsworth et al., 1978). Specifically, Bowlby ties the biases in learning that underlie the development of a behavioral control system to a specific mechanism, and by so doing, succeeds in setting his theory apart from those that preceded it by citing a well understood mechanism that is neither drive related nor tied to contingencies of reinforcement (Waters et al., 1990; Bowlby, 1982; Ainsworth, 1969).

Phase 4: Formation of a reciprocal relationship. -- The fourth phase begins sometime after the second year of life and is influenced by Piaget's description of changes at the end of the sensorimotor period of cognitive development (Waters et al., 1990; Ainsworth et al., 1978). Bowlby (1964) characterizes this phase as a "goal-corrected" partnership which underscores the flexible and hierarchical organization of the child's attachment behavior and the mothers' reciprocal behavior (Ainsworth et al., 1978). The child can now attempt to alter the mother's set goals toward a closer fit with his/her own through requests or persuasion and in conjunction with a more sophisticated cognitive function (Ainsworth, 1969). The infant is more and more capable of taking the mothers immediate goals and activities into account when the attachment behavioral system is active .

Beyond this point Bowlby is tacit concerning the fourth phase of attachment theory and has unfortunately left his theory of attachment vulnerable to criticism that, "it is a theory of infant attachment, a theory of adult attachment, and a great deal in between left to the imagination" (Waters et al., 1990, p. 226).

The theory of attachment put forth by Bowlby (1969) attempts to explain both attachment behavior and also the enduring attachments that children and other individuals make to significant others. Once the concept and theory of attachment is understood, it becomes easier to comprehend other phenomena within the framework. Most relevant to the current research, Bowlby (1973) explains separation anxiety in his second volume of the trilogy, *Separation*.

Separation Anxiety

Separation anxiety is manifest when one fears becoming separated from or losing someone loved (Bowlby, 1973). Freud (1926) introduced the usage of the term "anxiety" as meaning missing someone who is loved and longed for; and later Spitz (1946), advanced hypotheses concerning "fear of strangers," and "eight months anxiety." Using terms such as "eight-months anxiety," Spitz (1946) concluded that a child's fear of a person or object develops only as a result of the person or thing having caused the child pain. Many analysts agreed with Spitz and attempted to identify specific events that are intrinsically painful or dangerous to the child, thus bringing on separation anxiety. Bowlby (1969) took issue with Spitz's and others stance since fear of separation and loss does not fit this formula. Consequently, over the years there has been a proliferation of hypotheses advanced, none to the liking of Bowlby (1982).

Bowlby believes that given an ethological approach the difficulties encountered in previous hypotheses seem to disappear. More formally he states:

... it then becomes evident that man [sic] like other animals, responds with fear to certain situations, not because they carry a high risk of pain or danger, but because they signal an increase of risk. Thus, just as animals of many species, including man, are disposed to respond with fear to sudden movement or a marked change in level of sound or light because to do so has survival value, so are many species, including man, disposed to respond to separation from a potentially caregiving figure and for the same reasons. (Bowlby, 1982, p. 671)

It then makes sense why threats to abandon a child are so very terrifying, and why in turn, the child will respond with anger in an attempt to dissuade the attachment figure from leaving (Bowlby, 1973).

Bowlby's interest in the deleterious effects of separation was piqued when, during the second world war, Dorothy Burlingham and Anna Freud kept anecdotal accounts of the great difficulties encountered when caring for infants in residential nurseries (Burlingham & Freud; 1942; 1944). Robertson and Bowlby (1952) then made systematic observations of 2-to 3- year olds during prolonged stays in institutional settings and found their results supported the earlier findings of Burlingham and Freud (1944). Based on these, and later observations of children responding to major separations in which no substitute parental figure was available, Bowlby (1961) identified a three-phase response to long term separation

in children from about six months to four years old. A sequence of responses emerged when a child was left: protest, despair, and detachment.

During the protest phase the child initially screams and cries, and protests the departure of the mother. A majority of the child's energy is focused on the absent parent, actively looking for the lost attachment figure and refusing to engage in interaction with the substitute caregiver. The second phase, despair, occurs when the child appears to lose hope of seeing the attachment figure. The child becomes subdued, often vacillating between phases of despair and protest (Crowell & Waters, 1990). If the parent visits during this stage the child displays both anger and attachment (Bowlby, 1973).

Left in the separation environment the child begins to "settle in" or adapt, paying attention to available toys and attendants and moving into the third phase, detachment. The child seems to have forgotten the mother and, if she returns, appears to be uninterested in her (Bowlby, 1973; Main, & Weston, 1981). These behaviors are most frequently associated with institutional care or when a substitute attachment figure is not available (Bowlby, 1973).

There are a variety of situations that may lead to the traumatic separation of a child from his or her parents. Children's responses to these situations, such as hospitalization, have been observed and will be addressed later in the text. However, the child's response to separation and reunion with the attachment figure has played a crucial role in the systematic observation and classification of attachment styles and therefore the work of Mary Ainsworth and her classification system of attachment must be addressed.

The Work of Mary Ainsworth

The empirical studies of attachment behavior by Mary Ainsworth are outlined because her name, like Bowlby's, has become synonymous with attachment theory. In fact, Bowlby (1982) credits Ainsworth and her students, "with having led attachment theory to be widely regarded as probably the best supported theory of socioemotional development yet available".

In the 1950's Mary Ainsworth realized very little relevant research had been done in the area of infant-mother attachment. Consequently, she made the decision to examine how it is that a baby becomes attached to his/her mother and embarked on an area of research that would help form the foundation of attachment theory and shape the remainder of her career.

Ainsworth (1967) began her research of attachment with observations of infant/mother dyads within the Ganda tribe in Uganda, Africa. Twenty-five mothers with twenty-seven infants were visited for a couple of hours during the afternoon every two weeks for a period of approximately seven months. Ainsworth's findings made it clear that attachment behavior in Ganda children was present by six months of age as evidenced by the child crying when mother departed the room and also by greeting her on her return with smiles, lifting of the arms, and vocalizations of delight (Ainsworth, 1963, Ainsworth, 1967). In addition, the specific accounts of attachment behaviors observed and recorded during this time helped to fortify the base of Bowlby's Phase 2 and Phase 3 of attachment development (Ainsworth, 1969).

Following her work in Africa, Ainsworth (1969, 1978), made a shift to the United States where her efforts, and those of her colleagues were twofold: 1) to

develop an instrument for the study of attachment patterns in infant behavior and; 2) conduct a longitudinal study of middle class infants in the Baltimore area.

In 1969, Ainsworth and Wittig developed a laboratory situation in which to assess the effect of maternal absence on infant exploration. The instrument developed is known as the "strange situation" technique and consists of a standard series of eight episodes, each lasting three minutes. An infant and mother are brought into a laboratory room that contains two chairs and some toys; a stranger enters and sits talking to the mother and then the infant; the mother leaves the room; the mother returns and the stranger leaves them together; the mother leaves the infant alone in the room; the stranger returns; the mother returns once more (Ainsworth et al., 1978).

What they discovered was the infants' behavior during reunion with the mother turned out to be of unexpected interest. Some infants approached the mother and sought physical contact as expected. However, other infants avoided the mother on her return, while yet another group displayed anger or resistant behavior mixed with attachment behavior (Ainsworth, Bell, & Stayton, 1971). Eventually it was understood that infant attachment to the mother could not be understood by attending only to attachment behaviors. Attention to avoidant or resistant behaviors during episodes of reunion between mother and infant then became crucial as they differentiated infants into one of three groups (Ainsworth et al., 1978). Initially the groups were labeled A, B, and C to avoid premature descriptive labels (Ainsworth et al., 1978).

The Baltimore study included a total of 106 infants from white, middle class families in the Baltimore area. The total N of 106 infants was comprised of four

samples that were observed in the course of four separate projects. Sample 1 consisted of 26 infants that were visited at home at intervals of 3 weeks from 3 to 54 weeks of age. Sample II included 33 babies studied by Bell (1970) in her longitudinal research assessing the development of the concept of the object as related to infant-mother attachment. Sample III involved 24 babies assembled for studying the effects of repeated exposure to the strange situation. Sample IV was studied by Mary Main (1973) and included 27 infants in addition to the children in sample 3. Main's project was linking the relation between infant-mother attachment and later exploration, play, and cognitive function. All subjects (106) were then observed in the strange situation at one year of age (Ainsworth et al., 1978).

Based on observations of these 106 infants in the strange situation, the following differentiating patterns of attachment emerged. The largest and normative group (B), comprised 66 percent of the sample of 106, behaved as one-year-olds were expected, and were labeled secure (Ainsworth et al., 1978). These infants explored actively and displayed very little attachment behavior when mother was present. During separation most of them were upset and explored very little. All of them responded strongly upon mother's return, seeking close bodily contact and showing interest in interacting with her.

The smallest group (C), comprising 12 percent of the sample, were anxious even in the preseparation episodes. All were very upset by the separation from mother. And, although like the secure group they desired close bodily contact with mother upon reunion, this group also resisted contact and interaction with her. Based on these behaviors Group C was labeled anxious/ambivalent.

Finally, Group A, labeled anxious/avoidant, comprised approximately 20 percent of the sample, and behaved most unexpectedly. They showed little or no distress in the separation episodes and, most important they avoided contact, proximity, or even interaction with the mother in the reunion episodes. Some infants were even observed ignoring their mother, refusing all attempts of the mother's coaxing to come.

Because of earlier work by Robertson and Bowlby (1952), Ainsworth was alerted to the avoidant and resistant reunion patterns in the Strange Situation because they resembled reunion behaviors typically observed in children after longer, more traumatic separations. Yet, as Bretherton (1985) points out, the Strange Situation does not derive its validity as an assessment of attachment quality from this direct resemblance, but rather, from the systematic and extensive correlations of infant behavior in this situation with observations of maternal and infant behavior in the home throughout the first year of life.

Based on their home observations during the infants' first year of life and in conjunction with the Strange Situation, Ainsworth and her associates (1978) offered the following interpretation of the differences between Groups A (anxious/avoidant) and C (anxious/ambivalent):

Both A and C babies have experienced conflict about close bodily contact with their mothers. The conflict of the C babies is a simple one--between wanting close bodily contact and being angry because their mothers do not consistently pick them up when they want to be held or hold them for as long as they want. Because their mothers are insensitive to their signals, C babies lack confidence in their

responsiveness. Thus when the attachment system is highly activated, C babies are doubly upset because they have learned to expect to be frustrated rather than comforted.

The conflict experienced by the A babies is more complex. Like all infants, they want close bodily contact whenever the attachment system is activated at high intensity, but they have also come to avoid closeness with their mothers because of rebuffs. Therefore they have a classic approach-avoidance conflict, which is especially highlighted by the stresses of the strange situation (Ainsworth, 1982).

Therefore, the original findings of Ainsworth et al. (1978), with their sample of 23 Baltimore infants, can be summarized as indicating particular infant patterns of proximity, contact, and interaction regulation in the Strange Situation that tend to be associated with the quality of maternal caregiving earlier in the first year of life.

The successful development of attachment theory owes much to Mary Ainsworth and her colleagues for translating theory into measurement. Goldsmith and Alansky (1987, p. 806) acknowledge Ainsworth's contribution when they state, "its dominance [strange situation] of the field is such that one cannot discuss attachment research independently of it." And, until recently, the only theory-based method for assessing patterns of attachment has been the Ainsworth Strange Situation. However, this situation is changing with the advent of new methods for assessing security of attachment in toddlers, children, and adults. One such method is the attachment Q-sort by Everett Waters and Kathleen Deane (1985).

Q-Sort Methodology

In 1985 Waters and Deanes' work on a new measure of individual differences in attachment relationships appeared as a chapter in Growing points of attachment theory and research, a monograph published by the Society for Research in Child Development. The need for a new measure arose because there had been few nonlaboratory observations of attachment behavior in the previous ten years. In addition, reports on attachment behavior outside the 12-18 month age range had been few and far between.

Specifically, Waters and Deane (1985) cite the following limitations of the Strange Situation procedure as an attachment assessment instrument: 1) it is only applicable within a narrow age range; 2) repeated assessments must be spaced to prevent strong carryover effects; 3) the situation and scoring procedures do not lend themselves to research on developmental changes in the attachment control system; and, 4) it is expensive to administer and scoring is difficult, requiring specialized instruction. Through the development of a Q-sort for assessing secure attachment in toddlers Waters and Deane (1985) aimed to address these limitations by creating an instrument that facilitates a more naturalistic assessment of the attachment relationship.

The initial development of the Q-sort followed a four phase model of development. First, there was a review of the literature on attachment theory. During the review, a list of behaviors and contexts that were mentioned in theoretical articles or empirical research, were compiled. Along with behaviors, a list of significant constructs that one might want to have scored from an attachment Q-sort were also listed. Then, in a series of home visits, infants and toddlers were

rated on these variables. For example, included in the list were security, dependency, detachment, self-efficacy, fearfulness, anger, trust, and so on. Finally, each preliminary item was listed on a card and behavioral responses that would be the opposite of each item were defined.

The preliminary item set was then used to describe the behavior of infants and toddlers in a second series of home visits. Items that failed to differentiate among children, never occurred, or presented disagreement among observers were revised or eliminated.

In the third phase, the entire set of items and the items which subsequently appeared at opposite poles were categorized, and then to balance for social desirability within each category, there was elimination of either the item or its opposite. There were, at this point, a total of 100 items in the set.

Finally, parents familiarized themselves with the items and then rated their own infant or toddler's behavior. In addition, two observers visited each subject at their home on two separate occasions and then used the items to describe the child's behavior. Further clarification of the items then resulted in a final item set that consisted of a title and a definition that referred to specific behaviors, opposites were defined in italics as needed.

The Attachment Q-set has many psychometric and data-analytic advantages (Deane & Waters, 1984). Each item in the Q-set makes specific reference to behavior. Many of the items qualify their behavioral referents by specifying a specific context. The Q-set also covers a broad range of secure base and exploratory behavior, affective response, social referencing and other aspects of social cognition. In fact, Deane and Waters (1984) go so far as to say the Q-set can

be construed as an overview of the entire domain of attachment-relevant behavior. And, a final comment on the advantages of using any Q-sort methodology: the observers can be kept unaware of the constructs that will be scored from the data they provide and response bias is reduced by sorting items into a fixed distribution.

The Attachment Q-set and Empirical Research

To assess whether mothers could provide data on their children's attachment behavior with the use of the Q-sort, Deane and Waters (1984) conducted a study with 50 3-year-olds. Q-sort data was collected by both the child's mother and two separate observers during 3-4 hour visits to the home. After two visits the observers sorted the items. Correlations between the two Q-sort descriptions for each child ranged from .75 to .95. Therefore it was concluded that observers, given two occasions for observation, can be provided with enough information to yield highly reliable data.

Once the visits were completed, the Q-sort procedure was explained to the mother, and she was asked to familiarize herself with the Q-set by sorting the items into three piles based on her child's behavior. In the following week the mother observed her child with the intent of providing yet another Q-sort. At the end of the week the second Q-sort was completed and the mothers' two sorts were averaged to provide a composite description of her child. The correlation between the composite of the observers' descriptions and that of the mother ranged from .59 to .93 with a mean of .80.

Deane and Waters (1984) therefore concluded their results provided clear evidence that mothers can provide exceptional data on their children's attachment behavior when they are informed in advance of what they should observe, when the

procedure involves nonevaluatively stated items and when a forced choice procedure is implemented.

In an additional study, Vaughn and Waters (1990) report the relation between security, dependency and sociability scores from home observation, as measured by the Attachment Q-set, and Strange Situation classifications of 58 (25 boys, 33 girls) 12-18-month-old middle class infants. The study maintained two additional goals: to provide evidence that results from the two methods were significantly associated; and to increase confidence in the validity of each as an index of attachment security.

At 12 or 18 months, the infants were observed with their mothers in the Ainsworth Strange Situation. The infants were then classified as secure (55.2%), insecure-avoidant (19%), or insecure-resistant (25.9%). Q-sort observations were conducted prior to the Strange Situation for 17 subjects and following for the remainder. Security, dependency, and sociability scores were computed from Q-sort descriptions using the Waters and Deane (1985) criterion definitions.

In this research the primary hypotheses were confirmed. That is, the observer-based Q-sort security scores overlapped significantly and importantly with Strange Situation classifications. However, the home and laboratory data did not overlap completely. Consequently, the Q-set has since been revised and the original 100 items have been reduced to 90, wording has been simplified, and specific meanings of low placement for each item has taken place (Waters et al., 1990).

Adding to the growing body of evidence that supports the use of the Attachment Q-set as a measure of early attachment are Teti, Nakagawa, Das, and

Wirth (1991). In a study of preschool-age children, they examined the construct validity of maternally derived Attachment Q-set security scores as indexes of attachment security.

The subjects were 49 mothers and their children. All mothers had one infant and either one or two older children. Each mother and her children were observed twice in a laboratory setting where infant-mother and sibling-mother attachment were assessed. Mothers were given the Parenting Stress Index (PSI) before leaving the laboratory on the first visit. Two weeks prior to the first visit, mothers were sent a listing of the 90 items of the Waters and Deane (1985) Attachment Q-set in order to familiarize themselves with the descriptors as they applied to their older child. Finally, a 31-minute, eight episode procedure designed to examine mother-child interaction was videotaped.

The results indicated Q-Set security scores as derived from mothers' sorts related positively to sensitive, involved, flexible mothering and to preschoolers' sociability toward the mother during a laboratory free-play observation. In addition, more secure preschoolers exhibited less negative affectivity. Finally, Q-Set security scores were also associated with levels of parenting stress as indexed by the PSI. In other words, less secure children, as judged from Q-Set scores, would be perceived by their mothers as more stressful than would more secure preschoolers.

Teti et al. (1991) do not recommend the use of maternally derived Q-set security scores in the absence of independent observer ratings even though, with low-risk samples, the construct validity of the Attachment Q-Set has been supported whether mothers or trained observers were the sorters.

The Attachment Q-Set continues to gain validity within the field of attachment theory as is evidenced by its increasing appearance in empirical research (Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989; Pederson, et al., 1990; Teti et al., 1991). And, along with a slight shift in the measurement of attachment behaviors, the 1980's and early 1990's are witness to a slight shift in the empirical focus of attachment theory.

Current Areas of Study Within Attachment Theory

Findings linking individual differences in the quality of child-parent attachment to parental sensitivity and responsiveness were evident in Ainsworth's early work (Ainsworth et al., 1971), suggesting that these mothering patterns are the determinants of later functioning (Ainsworth et al., 1978). Consequently, within the past decade, various investigators have attempted to study the origins of secure and insecure attachment, and to date various measures of maternal sensitivity have not been uniformly effective (Belsky, Rovine, & Taylor, 1984; Goldsmith & Alansky, 1987; Pederson et al., 1990).

A longitudinal study by Belsky, et al. (1984) demonstrated, although maternal sensitivity implies the mother is actively involved with her infant, maternal involvement per se does not distinguish between securely and anxiously attached infants. Sixty infants were observed at 1, 3, and 9 months of age during home visits. At 12 or 13 months the infants were brought to the university setting where they participated in the Ainsworth Strange Situation. Maternal sensitivity was measured by thirteen individual behavior categories.

The planned comparisons in this study were in agreement with the findings of Ainsworth et al. (1978). That is, securely attached infants have experienced

intermediate levels of reciprocal interaction and maternal stimulation, while resistant babies have experienced less responsive care than securely attached infants. A cross-lag panel analysis revealed that fussiness was caused by mothering and did not serve to influence mothering. In other words, the covariation of fussiness and attachment is determined, at least in part, by the effect of mothering on infant behavior.

Based on these results Belsky et al. (1984) concluded that security is fostered by sensitive maternal care that involves neither too much nor too little interactive stimulation. Additionally, their data are consistent with the notion that avoidance may be a product of insensitive overstimulation and resistance is a product of insensitive understimulation.

Goldsmith and Alansky (1987) reported on maternal and infant temperamental predictors of attachment with the use of meta-analysis. They examined the extent to which mother interactional variables and infant proneness to distress could be predictive of infant-mother attachment. They made the following hypotheses: (1) the responsiveness and sensitivity of maternal caregiving predicts the security of the attachment relationship; and (2) that temperamental proneness to distress predicts behavioral patterns involving contact resistance in the strange situation.

The studies used for analysis were drawn from empirical research that implemented the Ainsworth Strange Situation or the Attachment Q-sort by Waters and Deane (1985). Studies that reported possible pathology were excluded. (For a meta-analysis of maternal effects on quality of attachment in clinical samples, see

Ijzendoorn, Goldberg, Kroonenberg, & Frenkel, 1992). A total of 25 studies were included in the final analysis.

The meta-analysis demonstrated that sensitive, responsive maternal interaction was predictive of security of attachment in the Ainsworth Strange Situation. There was however, evidence to show that the strength of the relation was less than many reviews had suggested. Regarding the second hypothesis, infant proneness to distress did predict resistance in the strange situation. The strength of the association was low but was roughly comparable to that in the maternal domain. Based on their findings, Goldsmith and Alansky (1987) emphasized the need for integrative research that would help in accounting for the substantial unexplained variation in the functioning of the attachment system.

One criticism of previous research, which may account for the unexplained variability, has been leveled by Pederson, et al. (1990). They believe the brief period of free play in the laboratory that is often utilized for the assessment of maternal sensitivity may mask all but the most conspicuous individual differences. They suggest a more effective and realistic means of assessment would include a situation where demands are placed on the mother's attention.

In a study of 48 12-month-old infants and their mothers Smith and Pederson (1988) successfully demonstrated a strong relation between sensitivity and attachment which supports this suggestion. The infant-mother dyads were videotaped in the Ainsworth Strange Situation. Then, rather than have the infant and mother engage in a period of free play, the mother was asked to fill out a questionnaire while her child was allowed to move about the room. There were no toys or engaging stimuli for the child. This purposefully put the mother in a

situation where demands for her attention were divided between completing the assigned task and attending to her child.

Smith and Pederson (1988) developed an assessment of the mother during the questionnaire task which included behaviors classified as appropriate, insufficient, and intrusive responses to infant cues. The results displayed a strong (94%) correct classification rate between secure or anxious attachment and mothers' behavior in the questionnaire situation.

More importantly, Smith and Pederson (1988) reported the pattern of differences among mothers of infants in the three attachment groups paralleled the findings reported by Belsky et al. (1984). It must be noted here that Smith and Pederson substitute anxious/resistant for the Ainsworth label of anxious/ambivalent. The two labels are interchangeable and refer to the same set of infant-mother behaviors.

During the questionnaire phase of the study, mothers of securely attached infants took time away from their task and were available for their infant. Mothers of anxious-resistant infants, even though aware of their babies' distress, appeared helpless to do anything about it. And finally, though the mothers of anxious-avoidant infants appeared more active than mothers of anxious-resistant infants as evidenced by more frequent gazes and vocalizations, their behaviors seemed paced by the completion of the questionnaire and not their infant.

The similarities in findings using home based and laboratory measures is consistent with Belsky's hypothesis that the anxious-avoidant pattern of attachment is a response to maternal overstimulation and the anxious-resistant pattern a

response to the mother's unresponsiveness to the infants' cues (Smith & Pederson, 1988).

Adding to the burgeoning support for Ainsworth's initial findings regarding maternal sensitivity and later attachment are those of Pederson et al. (1990). They studied 40 mothers and their infants with the use of a Q-sort study. Both the Waters Attachment Behavior Q-sort and a Maternal Behavior Q-sort developed by the authors, were utilized in this study. The results supported the claim of a central relation between maternal sensitivity and infant attachment quality. It was shown that maternal sensitivity was unrelated to maternal age, income, or socioeconomic status. There was however, a positive correlation between maternal education and maternal sensitivity. Mothers of secure infants were more knowledgeable about their infant and appeared to enjoy them more than mothers of less secure infants. Additionally, mothers of more difficult children were shown to be less sensitive.

There are additional studies that serve to support Ainsworth's et al. (1978) original position regarding maternal sensitivity (Egland & Farber, 1984; Lewis & Feiring, 1989). The one consistent factor among the studies that report strong effect sizes of maternal sensitivity and attachment quality is that the observations of mother and infant were conducted in the home and over a long period of time (1-2 years). It is this very issue that Pederson et al. (1990) bring to light when they acknowledge previous variations in effect sizes may be due, in part, to the elusive nature of sensitivity. Through extensive contact with the mother and infant in a natural setting a broader sample of maternal behavior is available to the observers, unlike most investigations that report weak size effects. Therefore, to adequately

assess maternal sensitivity researchers must make observations in contexts where more subtle attributes can be discerned (Pederson et al., 1990).

Not only is there an intensified awareness within the field of attachment theory regarding maternal sensitivity, but also concerning the parental perspective in general. In the past there has been neglect on the part of investigators' to address parental perceptions of attachment. Research has largely focused on attachment from the filial perspective (Bretherton, et al. 1989). Bretherton et al. attempted to remedy this problem by conducting research with 36 middle-class mothers and their 2-year-old children. They held one hour interviews with the mothers regarding their attachment relationship with their child. The questions were open ended and later analyzed through content analysis. Based on their findings, Bretherton et al. believe the Parent Attachment Interview can serve as an alternative or additional measure of attachment quality while also providing new insights into parental experiences of the attachment relationship.

The work by Bretherton et al. (1989), along with a recent publication by Crowell and Feldman (1991) that assessed mothers' working models of attachment relationships, are just two examples of studies that represent the new focus on parental perceptions of attachment quality. This trend toward studying parental behavior and perceptions as they impact the child is being seen within the arena of attachment theory, but is also echoed throughout several domains of child study. Central to the current research is the discipline of pediatric psychology and the similar empirical inadequacies that have arisen within that field. As was stated in the introduction, Dr. Melamed (1991) has made a recent call for research in pediatric psychology that addresses the very issue of parental behavior as it

influences the hospitalized child. Henceforth, the remainder of the literature review will focus on issues specific to the hospitalization of young children.

Hospitalization of a Young Child: Relevant Factors

There is a high level of concern about the emotional effects of hospitalization and illness upon the young child as is evidenced by the increasing volume of available research on the topic. As Thompson (1986) notes, Vernon, Foley, Siposicz, and Schulman (1965) only had 208 articles, a small percentage of which were formally structured research projects, available to them when they conducted a review of the literature on the emotional effects of hospitalization in 1965. By contrast, Thompson (1986), in a similar report some 20 years later, had available more than 300 formal research reports published since 1965. In general, the areas studied have included: 1) the assessment of psychological upset to the child, both pre and post hospitalization; 2) separation and rooming-in; 3) parental responses to hospitalization, as well as; 4) preparation of child and parent for hospitalization. As will become evident, parental response to the hospitalization of a child has received less attention than some of the other areas mentioned.

There is an obvious consensus among writers and researchers that hospitalization constitutes a stressful experience, especially for the child under five. All sick children, irrespective of their illness, their relationship to their parents, the quality of the hospital care, or their preparation for hospitalization, react at least minimally to hospitalization (Prugh et al., 1953; Nagera, 1978). There exist many observational reports and writings on the subject of maternal-child separation as an aspect of the young child's hospitalization experience. The review of the literature

concerning separation will therefore be limited to maternal-child separation as it pertains to short-term hospitalization.

Maternal-Child Separation

As was outlined in the previous section, there is abundant evidence in the literature that the young child's (6 months to 4 years) world is tied to that of the attachment figure. Disruption of this tie through separation can result in acute anxiety since this is the age when selective attachments are first forming and yet when children are only just beginning to be able to maintain relationships during a period of separation (Rutter, 1983). Not surprisingly, admission to the hospital, known as one of the most common reasons for young children to be separated from their parents, is considered a highly stressful event (Crowell & Waters, 1990; Wolff, 1969). It can therefore be expected that children between 6 months and 4 years of age will respond to this separation with signs of distress (Illingworth & Holt, 1955; Prugh et al., 1953; Nagera, 1978; Garnezy, 1983). In fact, Prugh (1983) even went so far as to conclude that separation from the mother may, in some cases, be more significant than the medical and surgical procedures undergone by the child. The consequences of separation become more clearly understood when described by Bowlby (1973) in his volume on Separation:

The children arrived at the nursery in the care of one or both parents. When the moment came for the parent(s) to depart, crying or screaming was the rule. One child tried to follow her parents, demanding urgently where they were going, and finally had to be pushed back into the room by her mother. Another threw herself on the floor and refused to be comforted. Altogether eight of the

children were crying loudly soon after their parents' departure.

Bedtime was also an occasion for tears. The two who had not cried earlier screamed when put in a cot and could not be consoled. Some of the others whose initial crying had ceased broke into renewed sobs at bedtime. One little girl, who arrived in the evening and was put straight to bed, insisted on keeping her coat on, clung desperately to her doll, and cried 'at a frightening pitch.' . . . these small children were in no mood to cooperate with the nurses or to accept comfort from them.

Hostile behavior, though infrequent, tended to increase during the two weeks of observation. It often took the form of biting another child or ill-treating the favorite object brought from home.

A breakdown in sphincter control was usual. Of the eight children who had attained some degree of control before arriving in the nursery, all but one lost it (p. 8).

Prugh (1983) lends further clarification as to why the child responds with such intense distress:

The separation is often interpreted as punishment or desertion, resulting in feelings of helplessness or fears of attack related to the child's limited capacity for reality testing. In addition to regression and various symptomatic reactions, the phasic sequence of protest, despair and detachment . . . is frequently seen after a few days of hospitalization, even in well-adjusted children, and may be troubling to parents (p. 1373).

If the child is unable to have contact with the parent, the stress of separation seems to lie particularly in the disruption of the attachment bond without opportunity to reconnect to a new person (Rutter, 1983; Garmezy, 1983; Nagera, 1978).

Separation, illness, anxiety, and hostility are all known to produce regression in young children because the child cannot concentrate on self control (McGillicuddy, 1976). When a young child is separated from his/her mother, the source of security is gone and the child regresses to babyish behavior. Trad (1987) offers two further possible explanations for the manifestation of regressive behavior in hospitalized children. First, the child may be attempting to defend against feelings of uncontrollability by resurrecting earlier experiences when feelings of mastery over the environment were present. Second, regression may be an attempt to search previous experience for a strategy of escape and mastery. As Langford (1961) pointed out, the younger the child, the more quickly the onset of regressive behavior.

In a study by Prugh et al. (1953) which looked at the responses of children to short-term hospitalization under conditions of daily parental visitation or weekly visitation, it was found that preschool children showed the highest incidence of significant disturbances regardless of the improved ward conditions. Older children (6 - 12 years) did show some decrease in disturbances of behavior when the ward conditions were manipulated. In the younger age group "anxiety over separation was the most common manifestation and most intense, occurring equally in both sexes and to some degree in all children" (p. 100).

A single hospital admission is not associated with an increased risk of developing long-term behavioral disturbances (Dougals, 1975; Quinton & Rutter, 1979), although short-term (10 days to 2 weeks) behavioral disturbances may be observed for several months (Crowell & Waters, 1990; Garnezy, 1983; Prugh, 1983). Robertson (1958) collected letters from parents following their children's hospitalization. Among the most common reactions reported were night terrors and other sleep disturbances, speech difficulties, timidity, and apprehension and fear of new people and new places. Specifically, post hospital behaviors may include one or all of the following in young children separated from their parents during hospitalization: 1) increased separation anxiety; 2) increased sleep anxiety; 3) aggression toward authority; 4) eating disturbances; 5) temper tantrums, and; 6) bed wetting (Douglas, 1975; Freiberg, 1972; Brain & MacLay, 1968; Illingworth & Holt, 1955; Prugh et al., 1953).

There was a definite difference in the positive reports received of the children who had only a limited amount of separation from their parents. In other words, when parents were allowed to visit longer hours or stay with the child and participate in his/her care the negative outcomes were attenuated.

Despite the consistency with which longitudinal studies report a limited period of behavioral upset after discharge from a hospital stay lasting a week or less (Thompson, 1986), there are situations in which long term posthospital disturbances may persist for a considerable period. Garnezy (1983) sheds further light on the situation when he states, "not only is admission to the hospital marked by acute distress in children between the ages of 6-48 months, but emotional disturbance in children is particularly acute if the child has had a poor relationship

with his parents or comes from a home marked by discord" (p. 58). Garmezy also notes that multiple hospital experiences enhance the probability of later psychiatric disorder.

Two retrospective studies help to clarify the above issue. Dougals (1975), in a longitudinal study of all children born in the whole of Great Britain during the first week of March 1946 to non-manual and agricultural workers, systematically accessed information concerning hospital admissions, details of education, behavior in and out of school, parental attitudes and home circumstances. In addition, participants were contacted every two years for 26 years. His results provided the following:

"strong evidence that one admission to hospital of more than a week's duration or repeated admissions before the age of five years (in particular between six months and four years) are associated with an increased risk of behavior disturbance and poor reading in adolescence.

. . . children most vulnerable to early admission are those who are highly dependent on their mothers or who are under stress at home at the time of admission (p. 17).

Then, in a partial replication of this study, Quinton and Rutter (1976) corroborated the findings of Douglas (1975) using roughly 1,500 boys from the Isle of Wight and 1,500 boys from an inner-London borough. Their findings on the effect of early childhood hospitalizations on later delinquent behavior supported Douglas' findings that single hospital admissions of children for up to a week carry no increased risk of later emotional or behavioral disturbance. However, repeated

hospital admissions were significantly associated with disturbance in later childhood as evidenced by emotional and conduct disorders (Quinton & Rutter, 1976). Rutter (1983) summarizes these two studies as follows:

The interest in these two findings is that the ill-effects associated with two admissions cannot be due simply to the additive effect of two stressors. . . . the implication is that although the first admission does not itself lead to disorder, in some way it predisposes the child to react adversely the second time he [sic] is hospitalized (p. 32).

Numerous hospitalizations of young children, resulting in long separations, seem to merge into a more chronic pattern and have been positively correlated with psychiatric disorders in the later years (Garnezy, 1983). Garnezy (1983) believes such outcomes help to advance the, "understanding of more fundamental processes that underlie separation--distress reaction" (p.54).

Wolff (1969) states what has since been reiterated by other writers regarding the young child's hospitalization and response to separation:

Under the age of four only the mother's actual presence in hospital can alleviate the child's anxiety . . . alone the child cannot master his [sic] anxieties. He [sic] may have fears of overwhelming attack and destruction because with his limited capacities he cannot understand what is going on. When his mother or father are present he leaves all this to them. He trusts them to put things right (p. 19).

With the advent of studies which have pointed out the deleterious psychological effects of hospitalization on young children, there have been

numerous interventions consistent with attachment theory that have been shown to effectively diminish the child's anxiety concerning separation (Crowell & Waters, 1990). For the most part, such interventions have included: 1) visiting, 2), rooming-in, and 3) arrangements to have the mother present during times of stress for the child (Duffy, 1972). One such intervention that allows a parent to maintain contact with the child throughout the hospital stay, and is considered by Prugh (1983) to be the only truly effective preventive measure for hospitalization of infants and preschool-age children, is known as rooming-in or living-in.

Parental Rooming-In

Since separation from parents was identified as a major factor contributing to the psychological upset of young hospitalized children, research has sought to determine whether interventions such as rooming-in, or unlimited visitation, may reduce the acute distress associated with separation. The research has yielded mixed results.

Brain and Maclay (1968), in a study of children under the age of six admitted for tonsillectomy, looked at the child's immediate response to hospitalization. Of these subjects, 101 were accompanied throughout their stay by the mother and constituted the experimental group. The remaining 98 subjects were admitted to the hospital alone and served as the control group. During the hospital stay, children in the experimental group made a better adjustment to the hospital as evidenced by their awareness of the reality of the situation and no overt signs of being 'unduly' disturbed. The experimental group also showed a lower incidence of emotional disturbance after discharge and a reduction of postoperative complications.

Fagin (1969) in a study similar in design to that of Brain and Maclay (1968), studied the effects of maternal attendance during hospitalization of young children. A total of 60 mothers were interviewed at three intervals: 1) day of child's admission 2) one week after discharge, and 3) one month after discharge. Thirty mother/child dyads were in the rooming-in condition and 30 mother/child dyads were in the non-rooming-in condition. Again, as in the previous study, children with non-rooming-in parents displayed more regressive behavior after hospitalization and appeared temporarily stunted in development by the hospitalization. For those children with rooming-in mothers, there was a progression towards more mature behavior. The posthospital differences between the two groups were most obvious when the mother left the child, in the child's manner of eating, sleep behaviors, toilet training, and emotional dependence. All of these behaviors were regressed in children with non-rooming-in mothers.

Lee and Greene (1969), studied the emotional state of children just prior to surgery. The children were classified into one of three groups: 1) the parent was present when the child was taken for surgery and had stayed the night, 2) the parent was present when the child was taken for surgery but had not stayed the night, and 3) the parent left the child the evening prior to surgery and was reunited with the child postoperatively. They found that crying among children whose parents roomed-in (23.6%) was more than twice that than among children with no parental contact (9.5%) or among those who only saw their non-rooming-in parents prior to surgery (10%). Their conclusion being; rooming-in is of no emotional benefit to children immediately prior to anesthesia and surgery.

Lehman (1975), in a similar study comparing the emotional and behavioral reactions of hospitalized children with rooming-in and a non-rooming-in parents, found a higher incidence of aggression in children with rooming-in parents. Lehman suggests the outcome may be linked to the greater security felt by children in the presence of parents.

Lehman's (1975) suggestion of felt security is further supported by the findings of Gross, Stern, Levin, Dale, and Wojnilower (1983). In a study of children's reactions to a painful medical procedure (venipuncture), they found that children exhibited significantly more crying, regardless of age, if their mothers were in the treatment room. Gross et al. (1983), do not recommend children remain unattended, but view the crying as a healthy response that results in attention from the mother, which in turn helps the child to cope with the frightening event. In addition, they report children with mother present, although displaying more crying behavior, were much more cooperative than unattended children.

Shaw and Routh (1982) had found similar results as those reported above. However, they compared 18-month-old children with 5-year-old children and their behavioral reactions to an injection, either with the mother present or absent. The young children in the mother-present condition displayed significantly more negative behavior during the injection than children in the mother-absent condition. For the 5-year-olds', behavior both during and after the injection was significantly more negative in the mother-present group. Children with the mother present cried longer upon getting the injection and fussed more while being dressed and taken from the examination room. The results were interpreted to mean that children may inhibit protest if the mother is absent.

It is possible that children with rooming-in parents in the Lee and Greene (1969) study felt greater security, and thus were more likely to exhibit aggressive behavior as expressed through crying. Furthermore, as Thompson (1986) reports, the Lee and Greene study maintained some serious methodological flaws which serve to invalidate the results. Unfortunately their research continues to be cited in the literature (Alexander et al., 1988) as a study which supports the negative effects of rooming-in.

In yet another study of children admitted for tonsillectomy, Couture (1976) studied thirty-one children ranging in age from 3 through 6 years and the effects of maternal visitation in one of three conditions: 1) limited visitation, 2) unlimited visitation, and 3) rooming-in by the mother. Behavior observations were conducted during hospitalization and maternal reports of behavior adjustment at one week and one month following hospitalization were made. There were no differences found in in-hospital behavior between the three groups of children. However, the posthospital effects of children with rooming-in parents were shown to be beneficial. These children displayed far less regressive behavior once they returned home than did their cohorts in the non-rooming-in condition. In addition, the rooming-in group of children had progressed, after one month, to a level of developmental progression relative to their behavior adjustment level at admission while the remaining children continued to display signs of regression.

McGillicuddy (1976) compared the effects of short-term surgical hospitalization on the behavior of children 14 through 48 months of age when the mother roomed in with her child and when she did not. In accord with previous results, she found beneficial postoperative effects when the mother roomed in. In

general, these children were less anxious, ate better and were more outgoing and involved at one month after discharge from the hospital than children in the non-rooming-in condition. In addition, children whose mothers roomed-in showed increased maturity as evidenced by greater improvement in the areas of separation anxiety, anxiety about sleep, eating disturbance, apathy withdrawal and overall behavior, when compared to the non-rooming-in group.

Although it appears research concerning the impact of rooming-in on children's immediate or in-hospital reactions has produced mixed results, the posthospital outcomes are more uniform in their citation of advantageous effects (Thompson, 1986). These studies have no doubt helped to increase the number of hospitals that now allow parents to room-in with their ill children. However, although most children will benefit from the presence of the parent during hospitalization, problems can arise when an over-anxious and concerned parent is constantly attending to the child (Langford, 1961; Duffy, 1972). Such a parent can have serious effects on the course of the child's illness, for children appear to respond to parental attitudes and anxieties as much as to anything that actually occurs in the hospital (Rutter, 1983).

Parental Anxiety and Hospitalized Children

There is agreement among researchers that the hospitalization of a child creates distress and anxiety in parents (Berenbaum & Hatcher, 1992; Trad, 1987; Thompson, 1986; Freiberg, 1972; Prugh et al., 1953). In fact, the distress of having a hospitalized child may be greater for the parent than if they themselves were undergoing the same procedure (Skipper, 1966). Parental anxiety emanates from a variety of sources, everything from concern for children left at home, to

anxiety over seeing other ill children in the hospital setting (Freiberg, 1972). Some parents fear criticism from the hospital staff regarding their role in the illness or their effectiveness as parents (Prugh, 1983). Others may respond to feelings of guilt, fear and anxiety by subconsciously withdraw from their sick child (Alexander, White, & Powell, 1986).

If the parents are very anxious and fearful about the hospitalization of their child this may be conveyed to the infant through either verbal or nonverbal communication and serve to exacerbate the child's distress (Skipper, 1966; Skipper, Leonard, & Rhymes, 1968). In her work with very young children, Escalona (1953) has termed this type of nonverbal communication "contagion." She states:

By contagion, I mean those processes whereby a feeling state transmits itself from mother to baby, as when an infant cries when held by an acutely tense and anxious person but seems quite content when held by one who is relaxed; or when a baby cries but then settles down merely upon being spoken to and patted in a reassuring manner. As far as I can see, contagion is never fully subject to voluntary control by the person from whom it emanates. An excited, worried mother may try to convey reassurance, but the baby, if he is susceptible to contagion, will respond to her actual feeling state. On the other hand, a person who really feels calm can, if she [sic] is at all skillful, intentionally convey a sense of calmness to the baby (p. 34).

It has been shown that the tendency for more anxious mothers to have more distressed children is found primarily with younger children (Siegel & Smith, 1989). This may be due to the fact that, as children mature, they develop greater independence from their mothers, thus reducing the influence of the mother's anxiety (Nagera, 1978; Siegel, 1988). Therefore, where younger children are concerned, it follows that attenuating parental anxiety is one means of reducing the hospitalized child's distress. In fact, Prugh et al. (1953) found that alleviating the mother's fear was the most important aspect of reducing the child's anxiety.

Freiberg (1972), in her interview of 25 mothers of hospitalized children, found mothers' most frequently discerned sources of anxiety were: a) a lack of information concerning the child's diagnosis, treatment and follow-up, and b) specific fear -provoking incidents such as watching painful medical procedures and hearing their child scream. Skippers' (1966) earlier findings were in accord with the parental reports in the Freiberg study. He researched the link between mother's level of advanced information about her child's hospitalization during tonsillectomy and her subsequent level of anxiety. His findings supported the hypothesis that mothers who were given a great deal of information about their child's hospitalization and surgery suffered less distress than mothers who received little or no advanced information. Additionally, the informed mothers adapted to the hospital experience with greater ease.

In a more recent study, Berenbaum and Hatcher (1992), investigated maternal anxiety of ill children with the Spielberger State-Trait Anxiety Inventory, and identified additional factors that accounted for maternal distress. They compared levels of anxiety in: 1) mothers of children hospitalized on a pediatric

intensive care unit; 2) mothers of children hospitalized on a general pediatric unit; and; 3) mothers of nonhospitalized ill children. It should be noted that levels of anxiety were measured just prior to admission to the hospital, a time that is reported to be most distressing (Freiberg, 1972).

Interestingly, Berenbaum and Hatcher (1992), found no anxiety differences between the mothers of children admitted to the general pediatric floor and mothers of nonhospitalized ill children. This lead them to the conclusion that, "the hospitalization of mildly or moderately ill children may not necessarily increase maternal emotional distress" (p.368). Using multiple regression, they found several factors that were predictive of maternal emotional distress, and offer these factors as explanation of the previous finding. The influences of maternal age, family stress, prior experience with hospitalization, and the mother's judgement of the severity of her child's illness all seemed to come into play when the child was less seriously ill. Mothers who had prior experience with their child's hospitalization tended to experience more distress. One additional note, this study did not control for specific diagnosis, treatment regimen, or events precipitating hospitalization, all of which impact maternal anxiety.

Carson, Council, and Gravley (1991), in a study of 47 hospitalized children 4 to 12 years old from Caucasian, two-parent, middle to upper middle-class families, found certain mother-child relationship factors were strongly related to and predictive of posthospitalization outcomes. Specifically, their data suggested that both maternal anxiety and aspects of the mother-child relationship were associated with adjustment reactions to hospitalization. Mothers who were high on trait

anxiety, and mothers who were overprotective, overindulgent, and rejective had children who exhibited poorer adjustment after hospitalization.

Maternal Anxiety and Rate of Visitation

It has been shown that parental anxiety reaches beyond contagion and factors into a parent's rate of visitation during their child's hospitalization (Prugh et al., 1953; Robinson, 1968; Alexander et al., 1986; Alexander et al., 1988). Prugh (1953) identified the impact of parental anxiety on visitation when he noted a small percent of parents in both the experimental group (unrestricted visitation) and the control group (limited visitation), who could not bring themselves to visit at all because of anxiety or guilt.

Robinson (1968) in a further study of mothers' reactions to their children's hospitalization, isolated the dimension of mothers' own fear of being hospitalized as an important predictive factor of visitation. He interviewed 379 mothers and helped to clarify previous findings by identifying the impact of mothers' fear on their hospitalized child. What he found was:

the mother's behavior in response to her fear of being hospitalized has certain implications for the well-being of her child. The tendency has been shown for the more fearful mothers to avoid the fear situation, to be less likely than other mothers to take full advantage of an unrestricted visiting system, to be less willing to live in hospital with their sick children, and to be less likely to prepare those children for their admission to hospital. (p. 230)

In a later study Alexander et al. (1986) examined levels of anxiety in 51 (35 mothers and 16 fathers) parents who did not room in with their young hospitalized

children. The children ranged in age from 3 through 8 years and were hospitalized for a variety of medical or surgical conditions. Parents were entered into the study at any phase of the child's hospitalization. With the use of the Spielberger State-Trait Inventory, measures of parental anxiety were taken twice with a 3-day interval. In addition, an observer sat with the child for 2 or 3 nights to measure sleep onset latency.

The results of this study showed that anxiety levels were significantly higher in parents with a greater number of children at home, were less education, and lower social status. Also, the longer the child was hospitalized the more anxious the parents became, while anxiety was also heightened as parental visits with the hospitalized child decreased. Alexander et al. (1986) cited these findings as possibly supporting Robinson's (1968) earlier conclusions that fearful mothers fail to take advantage of unlimited visitation. Thus, the authors conclude that anxious parents who do not visit on a frequent basis may miss opportunities for information, which in turn only serves to escalate their anxiety.

In a similar study, Alexander et al. (1988) compared anxiety levels of 50 rooming-in parents and 51 non-rooming-in parents of hospitalized children ranging in age again from 3 through 8 years. The method and design of this study was analogous to that of their previous study with the exception that the sample was refined to exclude any children who were 1) critically ill, 2) terminal, 3) immobilized, or 4) having had drugs in the past 24 hours that would affect sensory status. Note that severity of illness was not controlled for. One additional measure was also added, the Hollingshead Four Factor Index of Social Status.

In comparing non-rooming-in and rooming-in parents, three demographic variables were shown to be significant with the use of Spearman rho analyses. Non-rooming-in parents had fewer previous rooming-in experiences with the hospitalized child, maintained lower social status, and had higher numbers of nonwhite children than did rooming-in parents. The use of Wilcoxon tests demonstrated that non-rooming-in mothers had higher state and trait anxiety than rooming-in mothers. In order to assess associations between non-rooming-in and rooming-in maternal state anxiety and selected variables, stepwise regression was used. The variables were entered as follows: maternal education, home sleep onset latency (SOL), maternal occupation, and sex of child. The regression model accounted for a total of 42% of the variance. In other words, as maternal education decreased, SOL increased, and maternal occupation decreased in status, maternal anxiety was shown to increase. Also of importance, mothers with male children tended to allow their boys to stay by themselves more frequently than mothers of females. And, mothers of male children reported higher anxiety than those with female children.

Although studies have assessed the relationship between parental anxiety and its psychological effect on the hospitalized child, along with researching parental anxiety as predicted by specific variables, little research has been conducted that investigates the parent-child relationship and its impact on the parents' rate of visitation. Specifically, the question of maternal quality of attachment and rate of visitation has gone unanswered.

Bush et al. (1986) did conduct research in which a theoretical extension to attachment theory was identified through maternal influences on children's fear and

coping behaviors during a medical examination. To briefly recap this study, maternal agitation was associated with high rates of child distress and low attachment. The child in the care of an emotionally upset mother was less likely to seek emotional support from the mother while less distressed children had mothers who provided distraction and low rates of emotional response. Maternal distraction and reassurance in turn increased attachment behaviors in the child. In addition, younger children were more likely to receive reassurance from mothers when they displayed attachment behaviors.

Purpose of the Study

We can form initial ideas about the relationship between attachment and maternal responses to a medical situation from the above study. As yet, there has been no research evaluating parent-child relationships, as evidenced by quality of attachment, as it impacts the parents' rate of visitation and rooming-in decisions. The question then evolves, to what extent do quality of attachment and parental anxiety influence rooming-in decisions and rate of visitation of the hospitalized pre-school child?

This study also attempted to move beyond the assessment of parental anxiety as it impacts the dichotomous decision of rooming-in or not rooming-in, and evaluate the parents' rate of visitation. Rate of visitation is ultimately a more sensitive measure than assessing only rooming-in behavior.

Previous studies have assessed anxiety levels of mothers with children from 3 to 8 years of age. Because this study has targeted a younger age group (10 months to 4 years) where separation anxiety is greater, it is thought that both

rooming-in and non-rooming-in parents will display higher levels of state anxiety than those found in previous studies that utilized older children.

Furthermore, this study addressed visitation of other family members as possible sources of social support for the mother. The question of visitation by additional family members and its impact on maternal anxiety has also gone unanswered.

Finally, the hospitalized children in this study were selected based on diagnosis. This was to ensure a more homogeneous sample than preceding studies have utilized. By selecting specific non-surgical diagnoses that are representative of typical childhood hospitalizations, between-subject variability should be reduced and statistical power should be increased.

Hypotheses

Hypothesis I: Parental rate of visitation will be predicted by the number of children at home, socioeconomic status, parental level of education, number of previous hospitalizations of the child, age of the child, gender of the child, parental state anxiety and quality of attachment.

Hypothesis II: Rate of visitation will be predicted by the dichotomous measure of attachment, secure or insecure. Parents with insecurely attached children will display lower rates of visitation when compared to parents with securely attached children.

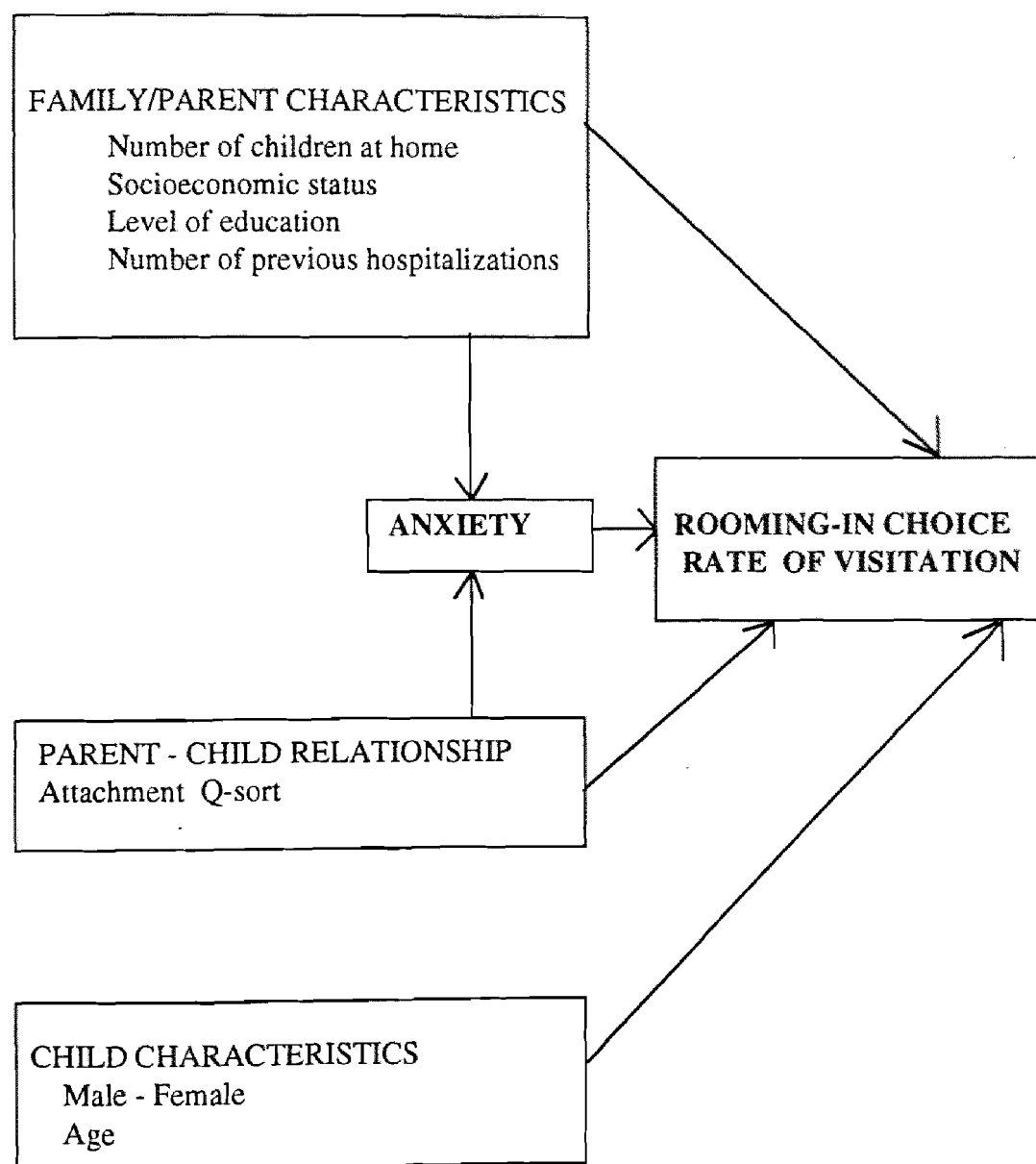
Hypothesis III: Rooming-in decisions will be predicted by the dichotomous measure of attachment, secure or insecure.

Hypothesis IV: Parental choice to room-in with an ill child will be predicted by number of children at home, socioeconomic status, parental level of education, number of previous hospitalizations of the child, age of the child, gender of the child, parental state anxiety and attachment scores.

Hypothesis V: The number of children at home, socioeconomic status, level of education, number of previous hospitalizations of the child, and attachment scores will be predictors of parental state anxiety.

Hypothesis VI: The dichotomous measure of attachment, secure or insecure, will be a predictor of both state and trait anxiety. Parents with insecurely attached children will display higher rates of state and trait anxiety when compared to parents with securely attached children.

Figure 1

Regression Model

Chapter Two

Design and Methods

Subjects.

Participants were 101 parents (92 mothers, 9 fathers) obtained from the third floor pediatric unit of Iowa Methodist Blank's Children's Hospital. Subjects were recruited from November of 1992 through May of 1993. All participants had a child between the ages of 10 months and 4 years ($M = 22.8$ months, $SD = 10.5$) hospitalized for nonsurgical illness. The racial composition of the sample consisted of 80 Caucasians, fourteen African Americans, four Asians, two Hispanics, and one person who listed their race as "other" but did not specify what it was. Based on the Hollingshead (1975) Four Factor Index of Social Status, 31 of the participants were classified as upper status (business and professional), 36 were middle status (craftsmen and clerical) and 33 were classified as lower status (laborers, semiskilled workers). Seventy-seven of the participants were married, seventeen were single and never married and seven were divorced.

To be included in the study participants had to have a hospitalized child who met six criteria established to recruit a more homogeneous sample while also affording the opportunity to draw comparisons with previous studies in this area. In addition, by establishing these criteria, the study aimed to assess children falling into the category of "typical" childhood hospitalization. Selection criteria were as follows:

First, the hospitalized child had to be between the ages of 10 months and 4 years. As was previously stated in the text, young children are most vulnerable to the effects of separation, thus the inclusion of pre-school children in this study.

The 10 month cut-off was established because the attachment measure lacks validity below the age of 10 months (Waters & Deane, 1985).

Second, the child had be admitted to the hospital for non-surgical reasons. This was to reduce between-subject variability and increase homogeneity of the sample.

Third, the cause of hospitalization had to be respiratory distress, gastro-intestinal illness, to rule out sepsis (ROS), respiratory syncytial virus (RSV), or a combination of the above. Based on hospital records, these diagnoses were found to be some of the most common reasons for the hospitalization of young children.

Fourth, the child could not be terminally ill or in critical condition. Terminally ill children constitute a special group by virtue of their condition, and therefore were eliminated from this study. Children in critical condition were eliminated, in part, on ethical principle. The parent should not be asked to participate in a study when they are already under terrible duress. In addition, both critically and terminally ill populations would have added additional variability, creating a less homogeneous sample.

Fifth, the child could not be restrained, with the exception of an oxygen tent. Children in restraints constitute a special population with added complications. Again, this was to reduce variability in the sample.

Sixth, the child could not have any obvious indication of developmental delay (i.e. Down Syndrome, spina bifida, etc.). There are often repeated hospitalizations of children with genetic anomalies and these children and their families constitute a special group outside the parameters of typical childhood hospitalization.

Consequently, of the 101 participants, 51 had children with respiratory distress (pneumonia, croup or first-time asthma), thirty-four had children with gastro/intestinal illness, ten parents had children with ROS, four had children with RSV, one child fell into the "other" category and one child was undiagnosed. There were a total of 53 males and 48 females hospitalized. Diagnosis was shown not to differ as a function of the child's gender.

Parents were approached by the investigator and asked to volunteer for the study after the first 24 hours of the child's hospitalization and no later than the third day. The child's attachment figure was asked to respond to the questionnaire.

Materials.

Participants were given a packet of questionnaires contained in an envelope. The order of the questionnaire and State-Trait form were counterbalanced to preclude systematic order effects in data collection.

1. Informed consent (Appendix A). All participants were give an informed consent that contained information concerning the purpose of the study and the expectations of the participants and experimenter.

2. Demographic Questionnaire (Appendix B) The demographic survey was developed to obtain information about the participant's age, gender, relationship status, ethnicity, and socioeconomic status. Participants were asked questions about rooming-in with their ill child, the number of children at home, and if their child had been hospitalized in the past. In addition, respondents were also asked to indicate the number of hours (day and evening) they had spent at the hospital since their child was admitted. Those parents who were rooming in received 8 additional hours for each night they roomed in. For those parents who were not rooming-in

there was an open-ended question where they were asked to describe why they had made the choice to not room-in.

The participants were provided a blank sheet of paper to make any additional comments and/or express concerns. This portion of the survey was intended as an informational vehicle to be used by the hospital staff for assessing areas of strengths or weakness in their delivery of services.

3. State-Trait Anxiety Inventory Form Y (Appendix C). The Spielberger State-Trait Anxiety Inventory (STAI) is a Likert-scale questionnaire consisting of subscales assessing anxiety in a specific situation and as a general trait. The STAI can be completed in approximately 10 minutes, does not exceed a 6th grade reading level, and is appropriate for assessing high school, college students and adults (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The state anxiety subscale consists of 20 short descriptive statements which the individual answered in reference to how he or she felt at the moment. Answers were recorded by indicating the intensity of the feeling: not at all, somewhat, moderately so, very much so. The trait anxiety subscale assessed relatively stable anxiety. The respondent was instructed to indicate how they generally feel by marking the frequency with which each of the 20 statements applied to them.

The STAI has relatively high (.80 and .90) internal consistency reliability for both the A-Trait and A-State forms. The test-retest reliability was in the high .70 for A-Trait and much lower, as would be expected, for the A-State measure. Construct validity for both A-State and A-Trait forms was demonstrated in multiple ways and are shown to have construct validity with other tests of anxiety. (Anastasi, 1986)

4. The Attachment Q-Sort (Appendix D). The attachment Q-sort is a recently developed behaviorally specific measure for assessing secure base behavior (Waters, Kondo-Ikemura, Posada, & Richters, 1990) and is gaining recognition in the field of attachment theory (Bretherton, Biringen, Ridgeway, Maslin, & Sherman, 1989; Teti, Nakagawa, Das, & Wirth, 1991). The Q-sort originally consisted of 100 behaviorally descriptive items that were sorted into nine piles according to a pre-defined distribution to provide an ipsative summary of an infant's behavior (Vaughn & Waters, 1990). The Q-sort has been refined and the original 100-item version has now been reduced to 90 items by simplifying wording and eliminating items that reduced observer-observer or parent-observer agreement. Specified meaning for low ratings have been added (Waters, 1989). Items most characteristic of the child are placed at one end of the distribution (most like my child, like my child = ratings of 7-8-9), and those most uncharacteristic of the child are placed at the opposite end (very unlike my child, unlike my child = 1-2-3).

The Q-sort provides assessment of three different constructs: security, sociability, dependency. In establishing construct reliability, forty-three Ph.D. psychologists familiar with developmental theories provided Q-sort definitions of these three constructs. The mean correlations among criterion sorts ranged from .70 to .80. The sorts for each theoretical construct were averaged to provide a composite definition. The reliabilities of these composites were greater than .95 for each construct (Waters & Deane, 1985).

To establish validity of the Q-sort method as an index of attachment security, parents and children were observed in the laboratory strange situation and

also rated in the home with the Q-sort by 2-3 observers and the mother. The correlation for security, dependency, and sociability were .58, .72, and .53 (all $p < .05$) (Vaughn & Waters, 1990). As mentioned previously, the Q-sort has been shown to lack validity with children under the age of 10 months (Waters & Deane, 1985).

The construct of security is of particular interest to this study. The attachment security criterion sort has a reported alpha reliability of .97. Vaughn and Waters (1990), using a regression model, established that Strange Situation reunion behaviors are significant predictors of home-base attachment security assessments. In addition, Vaughn and Waters identified 22 specific items that discriminate between secure and insecure attachment. Of these 22 items, 12 were statistically significant when t-tests were figured for each item.

For the current study, the 90 item Q-sort was altered to fit the specific needs of the sample. It was determined that doing the full 90 item sort would require so much time and concentration that it would: 1) distract parents from their ill children for an excessive time period, and 2) reduce their willingness to participate. To circumvent this ethical issue, 12 of the 22 items identified by Vaughn and Waters (1990) as discriminating between secure and insecure attachment were selected. Parents were not asked to sort the items as in a traditional Q-sort, but ranked them on a Likert scale according to the 9 point scale employed by Waters in the original Attachment Q-sort. All scale anchors remained the same and correspond precisely with the numbers as in the Attachment Q-sort. The items selected were reworded to ask parents directly about their child in contrast to the original wording which was

designed for outside observers. Cues indicating appropriate low score markings were included as in the revised Q-sort.

5. Hollingshead Four Factor Index of Social Status. The Hollingshead social status index yields both a score and a rank (1-5). The lower the social status, the higher the rank and the lower the score. Scores are computed by considering the following four factors: education, occupation, sex and marital status. This index also accounts for married, divorced, single, and widowed marital status. In addition, if both people are working outside the home, their scores are averaged for the final score and rank.

Procedure.

The researcher checked the nurses diagnosis board between 9:00 A.M. and 11:00 A.M. Monday through Sunday. If a child was identified as having the specified diagnosis the researcher would contact the nurse in charge of the child's care, verify the diagnosis and qualify that there were no other complications involved or developmental delays. Then, between 4:00 PM and 6:00 PM on the same day, the researcher would return and collect any completed questionnaires, answer questions, and again check the diagnosis board for any new admissions and possible participants.

Participants were approached by the researcher and asked to participate in the study if medical records indicated they met the criteria. Participants were asked to read and sign the informed consent and instructed to return the survey information to the researcher. It was explained in writing and verbally, that all information would be kept confidential. To further insure confidentiality, all participants were given an envelope and asked to seal their questionnaire in the

envelope upon completion. Sealed envelopes were returned to the researcher, or, if the researcher was unavailable, they were left with the charge nurse and put in a designated location to be pick-up the next day. The researcher was available to answer questions and check that all questionnaires had been completed. When participants failed to answer questions the researcher attempted to contact them before leaving the hospital to ask if they had intended to leave the answer blank or simply overlooked it. In this manner the percent of missing data was reduced.

Participants were informed that results from the study could be obtained from the hospitals' acting head of research, Keith McRoberts, any time after December of 1993 or from the researcher directly. All participants were informed they could keep a copy of the consent sheet.

Results

Parental rate of visitation was calculated by summing the total number of reported hours of visitation, including hours spent rooming-in, and dividing this number by the total number of hours the child was in the hospital. Rooming-in was defined as parental presence during evening and night-time hours, continuing until the child awoke in the morning. The status of rooming-in or non-rooming-in was determined by parental reports of rooming-in behavior. Those parents reporting partial rooming-in ($N = 13$) in which the attachment figure was not present every night, were included with rooming-in parents. Upon evaluating questionnaires of partial rooming-in parents, it was discovered a spouse or relative roomed-in with the child if the attachment figure was unavailable, thus the child was not alone. Of the 101 participants, 89 roomed-in with their child while 12 did not. According to staff nurses, this ratio of rooming-in to non-rooming-in parents, reflects the typical pattern of parent rooming-in behavior on this particular pediatric floor.

It appeared that state anxiety was elevated in the sample participants ($M = 43$, $SD = 11$) in comparison with normative STAI scores. This mean was higher than the normative scores reported by Spielberger (1983) in which working adult females ($N = 451$) reported a mean state anxiety score of 35.20 ($SD = 10.61$).

Predictors of Visitation Rate

Hypothesis I addressed predictor variables of visitation rate. Prior to conducting the regression analysis for predicting rate of visitation, a correlation matrix was conducted. Parental education and SES rank were highly correlated ($r = -.65$, $p < .01$). Consequently, parental education was dropped as a predictor variable due to problems with multicollinearity. Stepwise multiple regression was

used to assess socioeconomic status (SES), attachment quality, state anxiety, number or previous hospitalizations, number of children at home, age of the hospitalized child, and gender of the child, as predictors of visitation rate. The variable attachment significantly predicted visitation rate ($R = .35$, $F(1,90) = 12.68$, $p < .0006$), and accounted for 12% of the variance in rate of visitation. Parents who described more secure attachment behaviors in their children had higher rates of visitation. Because of missing data on the variable of previous hospitalizations, the equation had dropped out 6 subjects.

In addition, based on Spearman Rho procedures, age, gender of the child and number of children at home were not statistically correlated with visitation rate. Age and gender variables were eliminated from the regression equation along with number of previous hospitalizations. Number of children at home was retained in the equation to facilitate comparisons with previous findings by Alexander et al. (1988).

A second regression predicting rate of visitation was run with predictor variables of SES rank, state anxiety, attachment scores and number of children at home. On this second stepwise regression equation, attachment entered first resulting in $R^2 = .11$, $F(1,96) = 11.95$, $p < .0008$. The second variable to enter the equation was SES rank with $R^2 = .15$, $F(2, 95) = 8.41$, $p < .0004$. The additional 4% variance in visitation rate explained by SES was significant ($F = 4.45$, $p < .04$). As SES decreased, resulting in a higher rank, rate of visitation decreased. State anxiety and number of children at home did not enter into the regression as statistically significant predictors. When SES was divided into upper, middle and lower, rate of visitation decreased from upper to lower (See table 1).

Table 1

Means for Rate of Visitation by SES Status

<u>Level of SES</u>	<u>Mean Rate of Visitation</u>	<u>SD in % points</u>	<u>N</u>
Upper	75%	24	31
Middle	63%	26	36
Lower	57%	28	33

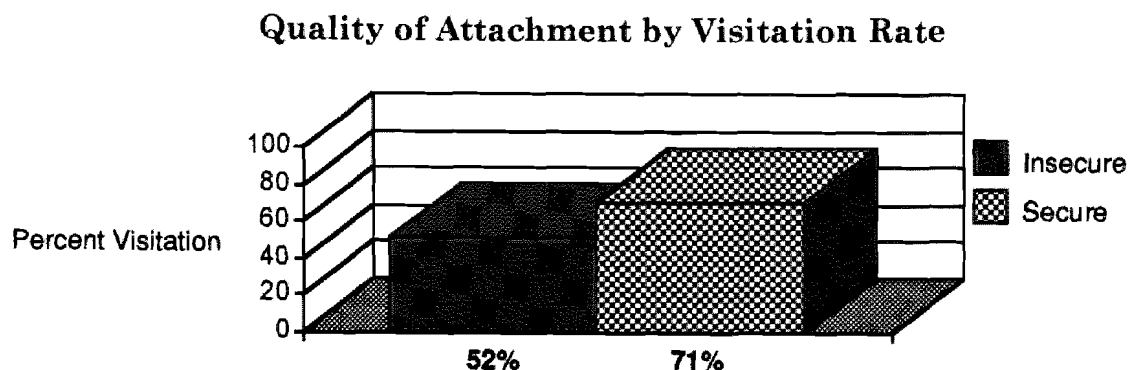
To better relate these findings to previous research on attachment, and address hypothesis II, parent-child relationships were classified as secure or insecure. A total attachment score was calculated by summing the twelve individual Likert scale scores. Based on previously reported means of parental Q-sorts in which children were classified secure or insecure (Vaughn & Waters, 1990), scores less than 66 were set as the criterion for insecure attachment ($M = 52$, $n = 32$) while scores greater than 66 were set as secure attachment ($M = 71$, $n = 69$). Parents with insecure quality of attachment maintained a lower rate of visitation than parents with secure attachment quality ($t = 12.16$, $p < .001$). (See Figure 1).

Table 2

Means for Rate of Visitation by Attachment

<u>Attachment Quality</u>	<u>Mean Rate of Visitation</u>	<u>SD in % points</u>	<u>N</u>
Insecure	52%	25	32
Secure	71%	25	69

Figure 2

Figure 2

To assess if quality of attachment and socioeconomic status were correlated, Pearson's r and Spearman's ρ were calculated for correlations of socioeconomic scores and rank, respectively, with attachment. The resulting correlations were not significant with either scores or ranking. Quality of attachment was not a function of SES.

Predictors of Rooming-In vs Non-Rooming-In

Non-rooming-in parents only constituted 12 subjects out of a total of 101, therefore regression procedures for predicting rooming-in vs non-rooming-in were not conducted. However, to compare results with previous research in this area, while also addressing hypothesis III and IV, means and standard deviations were calculated (see table 3), along with Mann-Whitney U tests for rooming-in and non-rooming-in groups on measures of attachment scores, Hollingshead SES scores,

state anxiety scores, parental level of education, number of children at home and number of previous hospitalizations . There was a significant difference among groups for SES scores, (Mann-Whitney $Z = 2.33$, $p < .02$). Non-rooming-in parents had lower SES status than rooming-in parents. Significant differences were also found among groups for level of education, Mann-Whitney ($Z = 2.44$, $p < .01$). Non-rooming-in parents were less educated than rooming-in parents. Difference in attachment scores, age of the hospitalized child, trait and state anxiety were not statistically significant. Non-rooming-in parents listed reasons why they chose not to room-in. For a listing of these comments, see Appendix E.

Table 3

Means and Standard Deviations for Rooming-in and Non-rooming-in Parents

Rooming-in Status	Rooming-in			Non-rooming-in		
	Mean	SD	N	Mean	SD	N
SES Score	35.13	11.3	88	26.91	8.5	12
Attachment Score	72.68	9.0	89	67.75	16.3	12
State Anxiety	43.00	11.0	89	44.00	11.4	12
Age of Child (Months)	23.00	10.00	89	21.00	12.0	12
Parent Education (Years Completed)	13.33	1.9	89	11.66	1.7	12
Previous Hospital Stays	1.02	1.8	85	1.00	1.2	10

Predictors of State Anxiety

Parental state anxiety was studied as an additional dependent variable. It was hypothesized (Hypothesis V), based on previous research, that parental education, SES rank, number of children at home and number of previous hospitalizations would predict state anxiety. Attachment was added to these other variables and emerged as the only significant predictor of state anxiety resulting in $R = .22$, ($F(1, 90) = 4.49$, $p < .03$), and accounting for 5% of the total variance.

Hypothesis VI stated that parents with insecurely attached children would have higher state and trait anxiety scores. Anxiety levels were used as dependent variables in two one-way ANOVA's and, quality of attachment, either insecure ($n=32$) or secure ($n = 69$) was used as the independent variable. The statistical outcome was significant for trait anxiety, ($F(1,99) = 4.71$, $p < .03$), yet measures of state anxiety were not significant, ($F(1, 99) = 1.59$, $p > .21$). Parents who rated their children as insecurely attached had higher trait anxiety scores than did parents who rated their children as securely attached.

Further analysis of anxiety levels and attachment were conducted with correlation procedures. Two-tailed Pearson's r between attachment scores and trait anxiety, $r = -.34$, ($p < .01$), and state anxiety $r = -.22$, ($p < .05$) were significant. As attachment scores decreased, state and trait anxiety increased with trait anxiety having the stronger correlation.

Measures of Visitation by Other Family Members

Although no hypotheses were generated regarding visitation by other family members (spouse, grandparent, aunt, uncle, close friend) these data were also analyzed to assess if the presence of family members and friends would affect

maternal anxiety, would correlate with SES, or possibly have an inverse relationship with the attachment figures' rate of visitation. Of the 101 participants, 68 indicated another person had been with the child during the hospital stay while 32 subjects indicated they were the only person available to their child throughout the hospitalization. A correlation between SES rank and presence of a significant other was computed using Spearman's rho procedures and displayed a significant correlation, $r = .32$ ($p < .001$). As SES rank went up (lower socioeconomic status) the probability of the parent being the only person available to their child went up. A paired t-test was conducted between presence of a significant other and SES scores, which also showed significance ($t = 7.79$, $p < .01$). Those people with support from other family members had higher SES scores ($M = 36$, $n = 68$) than did those people who provided the only support to their child ($M = 29$, $n = 32$).

Table 4

SES Rank and Presence of Significant Other

<u>SES Rank</u>	<u>Rank</u>	<u>N</u>	<u>Significant Other</u>	
			<u>% Yes</u>	<u>% No</u>
Upper	1	9	100	0
Upper Middle	2	22	82	18
Middle	3	36	64	36
Lower Middle	4	21	67	33
Lower	5	12	33	67

Again, Spearman's rho correlations were conducted to determine if the presence of another person would correlate with a reduction in state anxiety and/or a reduction in rate of visitation by the attachment figure. Neither of these correlations

were statistically significant, state anxiety resulted in $r = .01$ ($p = .50$) and presence of another family member resulted in $r = -.05$ ($p = .33$).

Chapter Four

Discussion

The purpose of this study was to evaluate parent-child relationships, as evidenced by quality of attachment, as they impact parents' rate of visitation and rooming-in behavior toward moderately or mildly ill hospitalized pre-school children. Attachment was considered a salient construct to assess in the hospitalized pre-school child given Bowlby's (1958) control system theory of attachment in which a child's ability to maintain a degree of proximity or access to an adult reduces the likelihood of harm or danger, thus increasing the chances of survival. Attachment behaviors are most evident when a person is frightened, fatigued, or sick (Bowlby, 1982). Consequently, the hospital setting provides a unique opportunity for assessing quality of attachment and parental behavior given the child's vulnerability that results from both illness and the strange situation.

In addition, this study attempted to replicate two previous findings: 1) that parental state anxiety can be predicted by socioeconomic status scores, number of children at home, level of parental education, and number of previous hospitalizations of the child; 2) that parental rooming-in behavior can be predicted by state anxiety. The study implemented a more sensitive measure of parental visitation behavior by moving beyond the dichotomous question of rooming-in or non-rooming-in and assessing total rate of parental visitation. Furthermore, although no formal hypotheses were stated, visitation by other family members was assessed.

Prior to conducting this study there were concerns that the use of a Likert scale measure of attachment, in tandem with maternal judgements of attachment

behaviors, would create a positively skewed distribution of scores due to social desirability, resulting in an inordinate number of securely attached children. However, when the sample was grouped as insecure or secure based on criteria reported by Vaughn and Waters (1990) the percentages of attachment types were found to be similar to those of Ainsworth et al. (1978) in their classic Baltimore study. Of their 106 infants observed in the laboratory strange situation, Ainsworth et al. classified 32% of the infants as insecure and 66% as secure. This sample ($N = 101$) had 32% of the infants identified as insecure and 68% identified as securely attached as indicated by maternal reports of attachment behaviors. Ultimately this could lend further validity to Water's (1987) attachment measure while also displaying that mothers can provide reliable data on their child's attachment behaviors.

The major findings of this study were twofold in nature. First, the results showed that among parents with low rates of visitation there existed greater evidence of insecure attachment when compared with high visitation parents. Second, this research failed to corroborate previous findings that state anxiety in parents of hospitalized children could be predicted by SES, parental education, number of children at home and number of previous hospitalizations.

The first hypothesis, that number of children at home, socioeconomic status, parental level of education, number of previous hospitalizations, quality of attachment, parental state anxiety and the age and gender of the child would be important predictors of visitation rates, was partially supported. Two variables were shown to predict rate of visitation, attachment and SES scores. Attachment

entered the equation, accounting for 11% of the total variability in predicting rate of visitation. As attachment scores decreased rate of visitation decreased.

That SES was a predictor of visitation rates was in accord with previous findings, as SES decreases, rate of visitation decreases. Children from lower SES families appear to be at greater risk for posthospital disturbance because of lower rates of parental visitation. Parents falling into this category should be strongly encouraged to visit frequently and educated about the benefits to their child if they room-in, especially if the child is under 4 years of age.

Surprisingly, the speculation that state anxiety levels would be important predictors of visitation rate, unlike similar previous studies that compared rooming-in versus non-rooming-in (Alexander et al., 1988) was not statistically supported. In fact, state anxiety did not even enter the regression equation. Past rooming-in studies may have overlooked what turns out to be the crucial variable -- attachment, which in this study was a better predictor of visitation than anxiety. This outcome will be discussed later in the text.

There was support for hypothesis II, that among parents with low rates of visitation there will exist greater evidence of insecure attachment when compared with high visitation parents. Parents who had rated their children as more securely attached were shown to visit more frequently than parents who had rated their children as insecurely attached.

Quality of attachment as it impacts parental visitation highlighted the importance of understanding parent-child relationships and the role they play in dictating parental behavior when a young child is hospitalized. The issue of parental visitation is crucial for children between the ages of 6 months and four

years because they are most vulnerable to the emotional effects of separation and illness. The symbiotic relationship with the mother, which is coupled with physical, psychological and cognitive immaturity makes separation a traumatic event for the child (Bowlby, 1969). And, previous research has shown a direct relationship between parental absence during hospitalization and later psychological disturbance. Furthermore, Garnezy (1983), has pointed out, when speaking of young hospitalized children, "emotional disturbance in children is particularly acute if the child has had a poor relationship with his [sic] parents" (p. 58).

The failure of an insecurely attached child to have access to his/her attachment figure at a time when that person is needed most, can only serve to exacerbate an already tenuous parent/child relationship and further create apprehension on the part of the child. Insecure infants have learned to distrust their attachment figure, knowing support will vacillate and finding it difficult to predict the behavior of the attachment figure. Consequently, children with low parental visitation, coupled with an insecure relationship, are most likely to display posthospital psychological disturbance. Of course this is impossible to answer with the current data set, which did not measure posthospital outcomes directly. However, Carson et al. (1991) found support for such a connection in their study where maternal anxiety and negative aspects of the mother/child relationship were strongly related to post hospital adjustment problems. In addition, they found mothers high on trait anxiety had children with poor posthospital outcomes. In this current study, mothers high on trait anxiety measures were shown to have lower attachment ratings of their children. It could be that Carson et al. (1991) were

tapping into attachment components when they were measuring trait anxiety and parent/child relationships.

Upon returning home, the insecurely attached child may require even more support and reassurance due to increased vulnerability to psychological disturbance. Unfortunately, it is this same child that once again may extinguish attachment behaviors and find parental attention and support to be lacking or inconsistent, adding further to the child's belief that the attachment figure is not to be trusted.

These results are similar to the findings of Smith and Pederson (1988) in which maternal sensitivity was related to attachment quality. Mothers of securely attached infants took time away from a specific task to attend to their child while mothers of insecurely attached infants continued their task and appeared helpless to do anything when their infant sought their support. In the hospital situation it appears mothers of securely attached infants were more sensitive to their child's needs and took time away from other tasks (i.e. work, care of other children, attention to spouse etc.) and responded to their ill child by maintaining high levels of visitation. On the other hand, mothers of insecurely attached infants appeared to be less sensitive to their ill child's needs and consequently maintained lower rates of visitation.

Unfortunately, because parents with insecurely attached children do visit less frequently, the times they are present may be marked by competing tasks, 1) demands for attention by the child and; 2) questions and reports from the nurses and doctors. As Smith and Pederson (1988) have shown, mothers of insecurely attached children have a difficult time knowing when to disengage from a given task and attend to their child. Therefore, when the parent is present, every effort should

be made to allow that parent the opportunity to attend to their child, with few, if any, outside demands. This is especially the case if the parent has a low rate of visitation.

If parents were made aware of the potential problems associated with low rates of visitation and separation during hospitalization, perhaps efforts could be made to assist them in overcoming obstacles to visitation and thereby reduce later psychological difficulties experienced by the child.

Due to the disparate numbers between rooming-in and non-rooming-in parents, hypothesis III, that rooming-in decisions would be predicted by quality of attachment, was addressed with the non-parametric Mann-Whitney U test. There was no significant differences between groups. These results should be interpreted with care and are not conclusive. Larger numbers of subjects in the non-rooming-in group could have shown very different results. This is an area for further study.

Hypothesis IV further addressed rooming-in, non-rooming-in decisions as evidenced by number of children at home, socioeconomic status, parental level of education, number of previous hospitalizations, age of the child, and gender of the child were assessed with non-parametric tests. The only significant differences among the groups, based on Mann-Whitney U tests, were SES and parental level of education. The non-rooming-in parents were from lower SES and had less education. This is in accord with findings by Alexander et al. (1988). Again, lower SES groups appear to be at risk, because not only do they display lower rates of visitation, but they are less likely to room-in with their child.

The findings of previous research by Alexander et al. (1988), that levels of state anxiety would be higher in non-rooming-in parents when compared with

rooming-in parents was not supported. The levels of state anxiety were close to identical for both rooming-in and non-rooming-in parents. Again this could have been a function of the small number of non-rooming-in parents in the sample.

The second major results of this research were stated in hypothesis V, that state anxiety in parents of hospitalized children could possibly be predicted by SES, parental education, number of children at home and number of previous hospitalizations. To these variables was added attachment scores. The results did not support previous findings. The only variable to enter the regression equation for predicting state anxiety was parent-rated attachment scores, which accounted for a minimal percent (5%) of the total variability.

One possible explanation for the lack of agreement between these findings and past research could be a function of previous failures to control for diagnosis and time of anxiety measures. All of the subjects in this study were approached after the first 24 hours, when anxiety levels are likely to be lower than at the time of admission, and all had young children who were hospitalized for specific nonsurgical procedures. Therefore it is possible, because of the more homogeneous sample of young children, that state anxiety would be higher than previous research reports, and less variable. However, previous studies (Alexander et al., 1986; Alexander et al., 1988; Berenbaum & Hatcher 1992) have reported almost identical means and standard deviations of maternal state anxiety as were found in this research ($M = 43$, $SD = 11$). Therefore hypothesis III, that parents of these young children and infants would display higher levels of state anxiety than those found previously among parents of older children, was not supported.

What this does indicate is, though the parents of the mildly or moderately ill young hospitalized children in this sample do experience heightened anxiety, their anxiety is not a function of education, SES, number of children at home or previous hospitalizations. What did predict some anxiety in this sample was quality of attachment. In other words, state anxiety did not vary as a function of any of the predictor variables with the exception of attachment scores. Mothers with higher levels of state and trait anxiety reported fewer secure attachment behaviors in their children.

Studies that employ multiple regression are often difficult to replicate due to the descriptive nature of the statistic and differences between studies in the variables entered into the regression equation, and it may be that the sample used in this study was somehow unique. One speculation for these findings is that these families, because of the age of the children involved, represented younger families. Consequently, of the 101 infants, thirty-seven were the only child in the family, there was a lower rate of divorce when compared to national averages, the mean age of the attachment figure was 28 years and 54% of children had never been hospitalized before. With a sample of older children, through age 10 years, these variables would be more salient because there would be more opportunity for them to present themselves. There is also the possibility that since subjects for the current research were more homogeneous in diagnosis, individual differences in response to anxiety provoking situations became more salient. The question still remains as to why levels of state anxiety were not predicted with the aforementioned variables and why state anxiety did not predict rate of visitation.

What is important to observe is that although anxiety levels appear to remain stable when comparing young mildly ill hospitalized children with more heterogeneous samples, what causes the source of anxiety is different when diagnosis and age are controlled for. With younger children something aside from SES, number of children at home, number of previous hospitalizations or parental education appears to be causing the anxiety. Skipper (1966) did find correlations between parental knowledge about a child's hospitalization and subsequent levels of anxiety. The less knowledge the parent had, the higher the anxiety. This variable was not addressed in this study and possibly could have been a predictor of state anxiety. Berenbaum and Hatcher (1992) did identify family stress, maternal age, prior experience with hospitalization and the mother's judgement of the severity of her child's illness as factors contributing to maternal stress when a young child was hospitalized. However, once again, diagnosis, age of the child and treatment regimen were not controlled in their study.

When diagnosis, age of the child and treatment were controlled in this study of hospitalized pre-school children, one source of both state and trait anxiety was identified as insecure attachment. This becomes even more important when it is acknowledged that the tendency for more anxious mothers to have more distressed children is found primarily with younger children (Siegel & Smith, 1989).

If sources of parental anxiety can be more clearly identified then caregivers will be better equipped to intervene and possibly help parents and children circumvent unnecessary emotional consequences of hospitalization. Future studies in this area need to refine sample selection procedures when searching for parental sources of anxiety and possibly use predictor variables of attachment in conjunction

with parental knowledge of the child's illness and parental perception of the severity of the illness when predicting state anxiety.

There was support in the results for hypothesis VI, that parents who rated their children as insecurely attached would show higher rates of state and trait anxiety. When ANOVA procedures were used to assess the dichotomous measure of secure attachment vs insecure attachment, trait anxiety was found to be significantly higher in mothers who had rated their children as insecurely attached when compared with mothers who had rated their children as securely attached. When anxiety scores were used in correlation procedures with attachment scores the both state and trait anxiety were significantly correlated with attachment scores. As attachment scores decreased state and trait anxiety levels increased.

These results are in accord with previous findings by Bush et al. (1986), in which it was shown that, while waiting with their child for a medical exam, maternal agitation was associated with high rates of child distress and low attachment. Not only do parents of insecurely attached children visit less frequently, but when they are present, they maintain higher rates of anxiety than parents of securely attached infants. Given the contagion theory of anxiety and previous research demonstrating that more anxious mothers are less effective in comforting their children, this puts the insecurely attached child at even greater risk for problems arising during the hospital stay, for not only is the mother unavailable, but when she is present, her anxiety potentially increases the child's distress. Of course, the shared variability between attachment and anxiety was not a large proportion of the total variability when predicting rate of visitation, so clearly other factors are entering into the relationship.

Bush et al. (1986) also found that children in the care of an emotionally upset mother were less likely to seek emotional support from the mother and that younger children were more likely to receive support when they did display attachment behaviors. A hospitalized child with insecure attachment may encounter a more anxious mother, which in turn may cause the child to be less likely to approach her for support or, possibly cause the extinction of attachment behavior all together. Eventually this could lead the mother to think the child has adjusted to the hospital and is not in need of her support. This is further illustrated by a non-rooming-in mother with a low attachment score and high state anxiety when she commented on her 2-year-old son's behavior by saying, "my child was in his own room and sleeping fine. The nursing staff is really friendly and my son seems to enjoy spending time with them."

Finally, the last area to be assessed in this study was not the subject of any formal hypothesis statements and will be briefly addressed. As an additional area of interest, the presence of a significant other as a possible covariant of attachment figure visitation was assessed. Somewhat surprisingly, the support of a significant other did not covary with visitation by the attachment figure. It was thought that if the attachment figure maintained a lower rate of visitation this would possibly be the result of having other family members stay with the child. In addition, maternal anxiety was not shown to change as a function of familiar people assisting in the care and support of the child.

What did correlate with the presence of significant others was SES. Again, as SES went down, the probability of having assistance from a spouse or other family member was reduced. Because this was an exploratory area of interest,

strong conclusions regarding the underlying causes will be avoided. However, a few speculations are made.

This correlation may have been significant because single mothers often fall into lower SES categories, making the opportunity for support from a spouse less likely. Furthermore, people in lower SES categories have lower paying jobs. If the attachment figure is attending to the ill child, the spouse may be taking care of children at home, thereby avoiding the cost of a baby-sitter.

Children and families in lower SES ranges appear to be at greater risk for stress because the mother is the only emotional support for the child and she does not have relief from the emotional and physical care of her child. This is an area for further research.

In conclusion, this research has demonstrated that rate of visitation by parents of hospitalized pre-school child suffering from typical childhood illness is a function of the quality of attachment. In fact, attachment was a stronger predictor of visitation than SES. Furthermore, parents who rated their children as insecurely attached displayed higher levels of both state and trait anxiety. Children who were rated by their parents as being insecurely attached may therefore be at greater risk for posthospital psychological disturbance than children rated by their parents as securely attached.

This study further supports previous findings that parents with low SES are less likely to room-in with their ill child than parents of middle or upper SES. Unfortunately, low SES parents are less likely to have the support and assistance of other family members when their child is ill. And, as SES scores increase the probability of support from a spouse or other family members increases.

Finally, it is encouraging to report that of 101 parents surveyed approximately 89% did room-in with their ill child. It is hoped that hospital administrations will continue to encourage and support parents' rooming-in and visiting their ill children and the trauma of separation anxiety during hospitalization will eventually be less of a concern for parents children, and hospital staff alike.

References

- Ainsworth, M. (1962). The effects of maternal deprivation: A review of findings and controversy in the context of research strategy. In Deprivation of maternal care: A reassessment of its effects. Public Health Papers No. 14. Geneva: World Health Organization.
- Ainsworth, M. (1967). Infancy in Uganda: Infant care and the growth of attachment. Baltimore; Johns Hopkins University Press.
- Ainsworth, M. (1969). Object relations, dependency and attachment: A theoretical review of the infant-mother relationship. Child Development, 40, 969-1025.
- Ainsworth, M. (1982). Attachment: Retrospect and prospect. In C. Parkes and J. Stevenson-Hinde, (Eds.), The place of attachment in human behavior, New York, Basic Books.
- Ainsworth, M., Bell, S. M., & Stayton, D. J. (1971). Individual differences in strange situation behavior of one-year-olds. In H. R. Schaffer (Ed.), The origins of human social relations. New York: Academic Press.
- Ainsworth, M., Blehar, M. C., Waters, E., & Wall, S. (1978). Patterns of attachment: A psychological study of the strange situation. Hillsdale, NJ: Lawrence Erlbaum.
- Alexander, D., Powell, G. M., Williams, P., White, M., & Conlon, M. (1988). Anxiety levels of rooming-in and non-rooming-in parents of young hospitalized children. Maternal Child Nursing Journal, 17, 79-99.
- Alexander, D., White, M., & Powell, G. (1986). Anxiety of non-rooming-in parents of hospitalized children. Children's Health Care, 15, 14-20.

- Anastasi, A. (1986). Sixth edition psychological testing. New York: Macmillan.
- Bell, S. M. (1970). The development of the concept of the object as related to infant - mother attachment. Child Development, 41, 291-311.
- Belsky, J., Rovin, M., & Taylor, D. G. (1984). The Pennsylvania infant and family development project, III: The origins of individual differences in infant-mother attachment: Maternal and infant contributions. Child Development, 55, 718-728.
- Berenbaum, J., & Hatcher, J. (1992). Emotional distress of mothers of hospitalized children. Journal of Pediatric Psychology, 17, 359-372.
- Bowlby, J. (1951). Maternal care and mental health. Geneva: World Health Organization.
- Bowlby, J. (1958). The nature of the child's tie to his mother. International Journal of Psychoanalysis, 39, 350-373.
- Bowlby, J. (1961). Processes of mourning. International Journal of Psychoanalysis, 42, 317-340.
- Bowlby, J. (1969). Attachment and loss. Vol. 1: Attachment. New York: Basic Books.
- Bowlby, J. (1973). Attachment and loss. Vol. 2: Separation--Anxiety and anger. New York: Basic Books.
- Bowlby, J. (1980). Attachment and loss. Vol. 3: Loss--Sadness and depression. New York: Basic Books.
- Bowlby, J. (1982). Attachment and loss: Retrospect and prospect. American Journal of Orthopsychiatry, 52 (4), 664-678.

- Bowlby, J. (1988) A secure base: Parent-child attachment and healthy human development. New York: Basic Books.
- Brain, D. J., & Maclay, I. (1968). Controlled study of mothers and children in hospital. British Medical Journal, 1, 278-280.
- Bretherton, I. (1980). Young children in stressful situations: The supporting role of attachment figures and unfamiliar caregivers. In G. V. Coelho & P. I. Ahmed (Eds.), Uprooting and development. New York: Plenum.
- Bretherton, I., & Ainsworth, M. D. S. (1974). Responses of one-year-olds to a stranger in a strange situation. In M. Lewis & L. A. Rosenblum (Eds.), The origins of fear (pp. 131-164). New York: Wiley.
- Bretherton, I., Biringen, Z., Ridgeway, D., Maslin, C., & Sherman, M., (1989). Attachment: The parental perspective. Infant Mental Health Journal, 10 (3), 203-221.
- Bretherton, I., & Waters, E., (1985). Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, 50 (1 - 2, Serial No. 209).
- Burlingham, D., & Freud, A. (1942). Young children in war-time London. Allen & Unwin, London.
- Burlingham, D., & Freud, A. (1944) Infants without families. Allen and Unwin, London.
- Burstein, S., & Meichenbaum, D. (1979). The work of worrying in children undergoing surgery. Journal of Abnormal Child Psychology, 7, 121-132.

- Bush, J. P., Melamed, B. G., Sheras, P. L., & Greenbaum, P. E. (1986). Mother-child patterns of coping with anticipatory medical stress. Health Psychology, 5, 137-157.
- Carson, D. K., Council, J. R., & Gravley, J. E. (1991). Temperament and family characteristics as predictors of children's reactions to hospitalization. Developmental and Behavioral Pediatrics, 12, 141-148.
- Couture, C. J. (1976). The psychological response of young children to brief hospitalization and surgery: The role of parent-child contact, and age (Doctoral dissertation, Boston University, 1976). Dissertation Abstracts International, 37, 1427-B.
- Crowell, J. A., & Feldman, S. S. (1991). Mothers' working models of attachment relationships and mother and child behavior during separation and reunion. Developmental Psychology, 4, 597-605.
- Crowell, J. A., & Waters, E. (1990). Separation anxiety. In M. Lewis & S. M. Miller (Eds.), Handbook of developmental psychopathology, (pp. 209-217.) New York: Plenum.
- Deane, K., & Waters, E. (1984). Security, dependency and sociability: A Q-sort analysis of conceptual and empirical relationships among related constructs in infancy and early childhood. Unpublished manuscript. State University of New York at Stony Brook.
- Dix, T. (1991). The affective organization of parenting; adaptive and maladaptive processes. Psychological Bulletin, 110 (1), 3-25.

- Douglas, J. W. B. (1975). Early hospital admissions and later disturbances of behavior and learning. Developmental Medicine and Child Neurology, 17, 456-480.
- Duffy, J. C., (1972). Emotional reactions of children to hospitalization. Minnesota Medicine, 55, 1168-1170.
- Egland, B., & Farber, E. A. (1984). Infant-mother attachment: Factors related to its development and changes over time. Child Development, 55, 753-771.
- Fagin, C. M. (1966). The effects of maternal attendance during hospitalization on the posthospital behavior of young children. Philadelphia: Davis.
- Fagin, C. M. (1969). Mothers and children in hospital. British Medical Journal, 2, 311.
- Feshback, S., & Singer, R. D. (1957). The effects of fear arousal and suppression of fear upon social perception. Journal of Abnormal, Social Psychology, 55, 283.
- Freiberg, K. (1972) How parents react when their child is hospitalized. American Journal of Nursing, 72, 1270-1272.
- Freud, S. (1926). Inhibitions, symptoms and anxiety. In Standard Edition, Vol. 20, Hogarth Press, London.
- Garmezy, N. (1983). Stressors of childhood. In N.Garmezy., & M Rutter. (Eds), Stress, coping, and development in children. (pp 43-84).New York, McGraw-Hill,
- Goldfarb, W. (1943). Infant rearing and problem behavior. American Journal of Orthopsychiatry, 13: 249-265.

- Goldsmith, H. H. & Alansky, J. A., (1987). Maternal and infant temperamental predictors of attachment: A meta-analytic review. Journal of Consulting and Clinical Psychology, 55, (6), 805-816.
- Gross, A. M., Stern, R. M., Levin, R. B., Dale, J., & Wojnilower, D. A. (1983). The effect of mother-child separation on the behavior of children experiencing a diagnostic medical procedure. Journal of Consulting and Clinical Psychology, 51 (5), 783-785.
- Harlow, H., & Zimmermann, R. (1959). Affectional responses in the infant monkey. Science, 130, 421-432.
- Harlow, H. F., & Harlow, M. K. (1969). Effects of various mother-infant relationships on rhesus monkey behaviors. In B. M. Foss (Ed.), Determinants of infant behavior. Vol. 4. London: Methuen.
- Hinde, R., & Spencer-Booth, Y. (1971). Effects of brief separation from mother on rhesus monkeys. Science, 173, 111-118.
- Hollingshead, A. (1975) Four factor index of social status. New Haven: Yale University Press.
- IJzendoorn, M. H., Goldberg, S., Kroonenberg, P. M., & Frenkel, O. J. (1992). The relative effects of maternal and child problems on the quality of attachment: A meta-analysis of attachment in clinical samples. Child Development, 63, 840-858.
- Illingworth, R. S., & Holt, K. S. (1955). children in hospital--some observations of their daily reactions with special reference to daily visiting. Lancet, 262 (2), 1257.

- Jessop, D.J., Riessman, C. K., & Stein, R. (1988). Chronic childhood illness and maternal mental health. Developmental and Behavioral Pediatrics, 9 (3), 147-156.
- Kidder, C., (1989). Reestablishing health: Factors influencing the child's recovery in pediatric intensive care. Journal of Pediatric Nursing, 4, 96-103.
- Langford, W. (1961) The child in the pediatric hospital: Adaptation to illness and hospitalization. American Journal of Orthopsychiatry, 31, 667-684.
- Lee, J. S., & Greene, N. M. (1969). Parental presence and emotional state of children prior to surgery. Clinical Pediatrics, 8, 126-130.
- Lehman, E. J. (1975). The effects of rooming-in and anxiety on the behavior of preschool children during hospitalization and follow up. Dissertation Abstracts International, 36, 3052B (University Microfilms No. 75-27037).
- Lewis, M. (1971) Clinical aspects of child development: An introductory synthesis of psychological concepts and clinical problems. Philadelphia; Lea & Febiger.
- Lewis, M., & Feiring, C. (1989). Infant, mother, and mother-infant interaction behavior and subsequent attachment. Child Development, 60, 831-837.
- Main, M. (1973). Exploration, play and level of cognitive functioning as related to child - mother attachment, Unpublished doctoral dissertation, John Hopkins University.
- Main, M. & Weston, D. R. (1981). The quality of the toddler's relationship to mother and to father: Related to conflict behavior and the readiness to establish new relationships. Child Development, 52, 932-940.

- McGillicuddy, M.C. (1976). A study of the relationship between mothers' rooming-in during their children's hospitalization and changes in selected areas of children's behavior. Dissertation Abstracts International, 37, 700B. (University Microfilms No. 76-19034).
- Melamed, B. G., (1991). Putting the cart before the horse, anxiety and coping in hospitalized children. Psychological Science Agenda, Nov./Dec..
- Melamed, B. G., Siegel, L. J., & Ridley-Johnson, R. (1988). Coping behaviors in children facing medical stress: In T. Field, P. McCabe, N. Schneiderman (Eds), Stress and coping across development, (pp 109-137). Hillsdale: Erlbaum, 1988.
- Nagera, H. (1978). Children's reactions to hospitalization and illness. Child Psychiatry and Human Development, 9 (1), 3-18.
- Parkes, C., & Stevenson-Hinde, J. (Eds.) (1982). The place of attachment in human behavior. New York: Basic Books.
- Prugh, D. G. (1983) The psychosocial aspects of pediatrics. Philadelphia: Lea & Febiger.
- Prugh, D. G., Staub, E., Sands, H. H., Kirschbaum, R. M., & Lenihan, E. A. (1953). A study of emotional reactions of children and families to hospitalization and illness. American Journal of Orthopsychiatry, 23, 70-106.
- Quinton, D., & Rutter, M. (1976). Early hospital admissions and later disturbances of behaviour: An attempted replication of Douglas' findings. Developmental Medicine and Child Neurology, 18, 447-459.
- Robertson, J. (1952). A two-year-old goes to hospital. New York University Film Library; New York. (Film).

- Robertson, J. (1958). Young children in hospital. London; Tavistock Publications Limited.
- Robertson, J. & Bowlby, J. (1952). Responses of young children to separation from their mothers. Courrier Centre Internationale Enface 2: 131-142.
- Robinson, D. (1968). Mothers' fear their children's well-being in hospital, and the study of illness behavior. British Journal of Preventive and Social Medicine, 22, 228-233.
- Rutter, M. (1979). Maternal deprivation, 1972-1978: New findings, new concepts, new approaches. Child Development, 50, 283-305.
- Rutter, M. (1983). Stress, coping and development: Some issues and some questions In N. Garmazy, M. Rutter (Eds): Stress, coping, and development in children. (pp 1-41). New York: McGraw-Hill.
- Schepp, K. G. (1991). Factors influencing the coping effort of mothers of hospitalized children. Nursing Research, 40 (1), 42-46.
- Shaw, E. G., & Routh, D. K. (1982). Effect of mother's presence on children's reactions to aversive procedures. Journal of Pediatric Psychology, 7, 33-42.
- Sides, J. P. (1977). Emotional responses of children to physical illness and hospitalization. Dissertation Abstracts International, 38B, 917-B.
- Siegel, L. J. (1988). Dental treatment. In D. Routh (ed). Handbook of Pediatric Psychology (pp 448-459) New York: Guilford.
- Siegel, L. J., & Smith, K. E. (1989). Children's strategies for coping with pain. Pediatrician, 16, 110-118.
- Simpson, J. A., (1990). Influence of attachment styles on romantic relationships. Journal of Personality and Social Psychology, 59 (5), 971-980.

- Skipper, J. K. (1966). Mothers' distress over their children's hospitalization for tonsillectomy. Journal of Marriage and the Family, 28, 145-150.
- Skipper, J. K., Leonard, R. C., & Rhymes, J. (1968). Children, stress, and hospitalization: A field experiment. Journal of Health and Social Behavior, 9, 496-506.
- Spitz, R. (1946). Analitic depression. Psychoanalytic Study of the Child, 2, 313-342.
- Spitz, R. (1947). Grief: A peril in infancy. New York University Film Library, New York. (Film)
- Spitz, R. (1950). Anxiety in infancy: A study of its manifestations in the first year of life. The International Journal of Psychoanalysis, 31, 138-143.
- Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., Jacobs, G. A. (1983). Manual for the state-trait anxiety inventory. Palo Alto, CA; Consulting Psychologists' Press.
- Teti, D. M., Nakagawa, R. D., Das, R., & Wirth, O., (1991). Security of attachment between preschoolers and their mothers: Relations among social interaction, parenting stress, and mothers' sorts of the attachment Q-set. Developmental Psychology, 27 (3), 440-446.
- Thompson, R. (1986). Where we stand: Twenty years of research on pediatric hospitalization and health care. Childrens Health Care, 14 (4) 200-212.
- Trad, P. V. (1987). Infant and childhood depression. New York: Wiley.
- Vaughn, B. E., & Waters, E. (1990). Attachment behavior at home and in the laboratory; Q-sort observations and strange situation classifications of one-year-olds. Child Development, 61, 1965-1973..

- Vernon, D. T., Foley, J. M., Sipowicz, R. R., & Schulman, J. L. (1965). The psychological responses of children to hospitalization and illness. Springfield, Ill.: Charles C. Thomas.
- Waters, E. (1987). Attachment behavior Q-Set, revision 3.0. New York: Stony Brook, Stony Brook, New York. 11794.
- Waters, E. (1989). Attachment Q-set (Version 4.0). State University of New York at Stony Brook, Stony Brook, New York. 11794.
- Waters, E., Kondo-Ikemura, K., Posada, G., & Richters, J. E., (1990). Learning to love: Mechanisms and milestones. In M. Gunner & A. Stroufe (Eds.), Minnesota Symposia on Child Psychology. Hillsdale, N.J.; Lawrence Erlbaum Associates.
- Waters, E., & Deane, K. E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton & Waters (Eds.), Growing points of attachment theory and research. Monographs of the Society for Research in child Development. 50 (1-2, Serial No. 209).
- Wolff, S. (1969). Children under stress. London: Allen Lane, The Penguin Press.

Appendix A
Informed Consent

Informed Consent Sheet

This research will involve about 80 parents with children hospitalized at Iowa Methodist's Blank Children's Hospital. The purpose of the research is to examine how parents and guardians react to the stress of having a hospitalized child. The study also examines decisions by parents to room-in or not room-in with their child during the hospital stay. Participants will fill out a group of paper-and-pencil questionnaires. In addition, this will help the hospital staff to better serve the needs of their patients and families.

In the attached questionnaire, you will be asked for your age, race, sex, educational level, and some questions about your child (for example, age, number of times hospitalized etc.) We are collecting this background information so that we know something about the people who are participating in this research project. All together, the questionnaires will take about 20-30 minutes to complete.

Please answer as completely and honestly as possible. Your name will not be connected with your answers in any way. All information gathered will be used only for scientific purposes.

You do not have to participate in this research. You may freely decide not to finish the attached questionnaire at any time. Please feel free to ask any questions you may have at any time during or after the project. If the researcher cannot answer your questions completely, feel free to contact Jane Robinson at Drake University (271-3136) or Susan Isbill Ph.D.(241-6834).

We greatly appreciate your assistance in completing this important research.
By signing this form, you voluntarily agree to participate in this project. You can withdraw from the project at any time. You may keep a copy of this consent form.

Name (please print)

Signature

Investigator's Signature

Date

Appendix B
Demographic Questionnaire

Please answer the questions below so that we know something about the people who respond to this survey. Your answers will not be connected with your name.

1. Relationship to hospitalized child: ___ mother ___ father ___ other, please specify
2. Your age ___ 3. Age of your hospitalized child ___ 4. Sex of child ___ male ___ female.
5. Marital status: ___ married ___ divorced/single ___ single, never married ___ widowed.
6. Has your child been hospitalized before? ___ yes, ___ no.
If you responded **yes**, how many times has your child been in the hospital? ___ times.
7. How many other children do you have at home? ___ 0 ___ 1 ___ 2 ___ 3 ___ 4 ___ 5 or more.
9. Which of the following best describes your child's racial or ethnic identification? (Mark one)
 ___ black (African-American) ___ white (Caucasian)
 ___ chicano (Mexican-American) ___ Oriental (Asian-American)
 ___ native American (American Indian) ___ other - specify _____
10. Years of schooling you have completed. (circle **only** the highest year completed)
 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
 Junior High High School College or Training Graduate or Professional School
11. Are you currently employed? ___ yes ___ no. Full time ___ Part time ___

Please list your occupation: _____

If you are not currently employed, please list occupation of child's other parent _____

The following questions concern aspects of rooming-in with your child.

1. Are you rooming-in (staying the night) with your child while he/she is hospitalized?
 ___ YES ___ NO
2. Have you ever roomed-in with your child during another hospital stay? ___ yes ___ no
 If yes, how many times? ___
3. When was your child admitted to the hospital? ___ Day ___ Time of day.
4. Please write below the number of hours you have spent in the hospital since your child was admitted. If you are rooming-in please write 8 hours for the night.

	Day 1	Day 2	Day 3	Day 4	Day 5
Day & Evening Hours	_____	_____	_____	_____	_____
Over Night Hours	_____	_____	_____	_____	_____

Please Turn Page Over

5. When you were **not** with your child, were other family members who are close to the child here at the hospital? Please write below the relationship of that person to the child and the number of hours that person was with your child. Relationship to the child? _____

	Day 1	Day 2	Day 3	Day 4	Day 5
Day & Evening Hours	_____	_____	_____	_____	_____
Over Night Hours	_____	_____	_____	_____	_____

Please circle the answer that best fits your reaction to this questions.

1. In general, hospitals make me nervous and uncomfortable.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

2. The hospital staff have explained that I can stay the night with my child and I have been made to feel welcome if I choose to stay.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

If you **are not** rooming in with your child please use the space below to explain the reason or reasons why you have made this choice.

Appendix C
Attachment Q Sort Questionnaire

The following questions have to do with your child's behavior. You are to consider your child's behavior during a 7 day period when he/she was not ill. These questions are NOT to be answered based on your child's behavior since being admitted to the hospital. On certain questions it is indicated when low markings should be made. Please read all parts of the question.

1. When my child is upset or injured, he/she will accept comforting from adults other than me. (Low score: You are the only one he/she allows to comfort him/her)

1	2	3	4	5	6	7	8	9
Very Unlike		Unlike My		Neither Like		Like		Most Like
My child		Child		Nor Unlike		My Child		My Child

2. My child acts like he/she expects me to interfere with his/her activities when I am simply trying to help him/her with something.
 (Low score: Accepts your help readily, unless you are in fact interfering.)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

3. My child is lighthearted and playful most of the time.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

4. When given a choice, my child would rather play with toys than adults.
 (Low score: Would rather play with adults than toys.)

1	2	3	4	5	6	7	8	9
Very Unlike		Unlike My		Neither Like		Like		Most Like
My Child		Child		Nor Unlike		My Child		My Child

5. If held in my arms, my child stops crying and quickly recovers after being frightened or upset.
 (Low score: Not easily comforted)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

6. My child copies a number of behaviors or ways of doing things from watching my behavior.
 (Low score: Doesn't noticeably copy your behavior)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

7. When I don't do what my child wants right away, he/she behaves as if I were not going to do it at all. (Fusses, gets angry, walks off to other activities, etc.)
 (Low score: Waits a reasonable time, as if he expects I will shortly do what he asked)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

8. My child readily lets new adults hold or share things he/she has, if they ask to.

1	2	3	4	5	6	7	8	9
Very Unlike		Unlike My		Neither Like		Like		Most Like
My child		Child		Nor Unlike		My Child		My Child

9. My child keeps track of my location when he/she plays around the house.

Calls to me now and then.

Notices me go from room to room.

Notices if I changes activities.

(Low score: Doesn't keep track)

1	2	3	4	5	6	7	8	9
Very Unlike My child		Unlike My Child		Neither Like Nor Unlike		Like My Child		Most Like My Child

10. My child tries to get me to imitate him/her, or quickly notices and enjoys it when I imitate him/her on my own.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

11. If I laugh at or approve of something my child has done, he/she repeats it again and again.

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

12. If I move very far, my child follows along and continues his/her play in the area I have moved to. (Doesn't have to be called or carried along; doesn't stop play or get upset)

1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---

Very Unlike My child		Unlike My Child		Neither Like Nor Unlike		Like My Child		Most Like My Child
-------------------------	--	--------------------	--	----------------------------	--	------------------	--	-----------------------

Please feel free to use the remaining space for any comments, concerns or recommendations you may have for the hospital staff. Could the staff have done anything to make this experience less stressful for you? Any and all comments are encouraged and welcomed.

SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger
in collaboration with
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

STAI Form Y-1

Name _____ Date _____ S _____
Age _____ Sex: M _____ F _____ T _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

NOT AT ALL
SOMEWHAT
MODERATELY SO
VERY MUCH SO

- | | | | | |
|--|---|---|---|---|
| 1. I feel calm | ① | ② | ③ | ④ |
| 2. I feel secure | ① | ② | ③ | ④ |
| 3. I am tense | ① | ② | ③ | ④ |
| 4. I feel strained | ① | ② | ③ | ④ |
| 5. I feel at ease | ① | ② | ③ | ④ |
| 6. I feel upset | ① | ② | ③ | ④ |
| 7. I am presently worrying over possible misfortunes | ① | ② | ③ | ④ |
| 8. I feel satisfied | ① | ② | ③ | ④ |
| 9. I feel frightened | ① | ② | ③ | ④ |
| 10. I feel comfortable | ① | ② | ③ | ④ |
| 11. I feel self-confident | ① | ② | ③ | ④ |
| 12. I feel nervous | ① | ② | ③ | ④ |
| 13. I am jittery | ① | ② | ③ | ④ |
| 14. I feel indecisive | ① | ② | ③ | ④ |
| 15. I am relaxed | ① | ② | ③ | ④ |
| 16. I feel content | ① | ② | ③ | ④ |
| 17. I am worried | ① | ② | ③ | ④ |
| 18. I feel confused | ① | ② | ③ | ④ |
| 19. I feel steady | ① | ② | ③ | ④ |
| 20. I feel pleasant | ① | ② | ③ | ④ |



Consulting Psychologists Press, Inc.
3803 E. Bayshore Road • Palo Alto, CA 94303

SELF-EVALUATION QUESTIONNAIRE

STAI Form Y-2

Name _____ Date _____

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

- | | ALMOST NEVER | SOMETIMES | OFTEN | ALMOST ALWAYS |
|--|--------------|-----------|-------|---------------|
| 21. I feel pleasant | ① | ② | ③ | ④ |
| 22. I feel nervous and restless | ① | ② | ③ | ④ |
| 23. I feel satisfied with myself | ① | ② | ③ | ④ |
| 24. I wish I could be as happy as others seem to be | ① | ② | ③ | ④ |
| 25. I feel like a failure | ① | ② | ③ | ④ |
| 26. I feel rested | ① | ② | ③ | ④ |
| 27. I am "calm, cool, and collected" | ① | ② | ③ | ④ |
| 28. I feel that difficulties are piling up so that I cannot overcome them | ① | ② | ③ | ④ |
| 29. I worry too much over something that really doesn't matter | ① | ② | ③ | ④ |
| 30. I am happy | ① | ② | ③ | ④ |
| 31. I have disturbing thoughts | ① | ② | ③ | ④ |
| 32. I lack self-confidence | ① | ② | ③ | ④ |
| 33. I feel secure | ① | ② | ③ | ④ |
| 34. I make decisions easily | ① | ② | ③ | ④ |
| 35. I feel inadequate | ① | ② | ③ | ④ |
| 36. I am content | ① | ② | ③ | ④ |
| 37. Some unimportant thought runs through my mind and bothers me | ① | ② | ③ | ④ |
| 38. I take disappointments so keenly that I can't put them out of my
mind | ① | ② | ③ | ④ |
| 39. I am a steady person | ① | ② | ③ | ④ |
| 40. I get in a state of tension or turmoil as I think over my recent concerns
and interests | ① | ② | ③ | ④ |

Appendix E

General Comments

- 004 During the day it was like the nurse expected me to be here to care for my son. Diapers, naps, etc. At night while Logan was asleep. I felt like I was in the way and how dare I sleep while they were working.
- 008 The hospital staff have been real nice. The student nurses that my son has had are very helpful and Joseph has liked them. He is kind of scared because of all the needle pokes.
- 009 This is the first time a child of mine has ever been to the hospital. From the first step into the hospital I was welcomed by Char a friend from when I attended beauty school. That was extra nice. She treated us wonderfully and took us directly to our room and made us feel at ease. All the doctors and nurses have been great! I stayed with my son over night [sic] and will again tonight. I feel good about that and have been made to feel O.K with that. I would never leave my child's side ever. I'm so pleased here and it's a fine hospital. I also appreciated the directions around so I knew where to get food, baths and anything I needed. For being a very scary event for my son I've never felt more calm and confident in a hospital ever. It's been a nice stay. Also great care.
- 010 So far our stay has been as pleasant as possible. Most of my family's tensions and stress during this stay are related to the fact that we have had 2 other immediate family members die in the past 6 months. Both involved long hospitalizations.
- 015 The lab technicians or anybody really doesn't need to come in and automatically flip a light on assuming you are awake. They should have a little compassion and ease you out of your sleep for those nasty needle jobs.
- 018 The staff was great!
- 019 The nursing staff and assistants do an exceptional job far as treatment, consideration, care and understanding. Everyone is very helpful.
- 026 I'm a nurse, so my concerns with the hospital are very little. I would never leave my child unattended, he is starting to recognize that there are people he doesn't now and will not go to them. I feel if I were to leave him it would be very traumatic for him. He allow [sic] myself, his father, and his 11 yr old sister to comfort him and if we were not there he wouldn't understand why we abandoned him. Dad has a lot of anxiety when ever one of our children gets hurt or is in pain. He is very comforting towards the child but he releases the anxiety in the emotion of anger. He handle the crisis or situation then gets mad when he knows everyone is O.K He doesn't direct the angry [sic] at people.
- 028 My husband and I feel that we have received the absolute best care we could expect for our child, in all 3 visits here. Doctors and nurses alike were very helpful in answering any and all of our questions. We have always been made to feel warm, welcome and comfortable. we will always have peace of mind knowing that Blank Hospital is here and that our child will always receive the care that she needs.
- 031 I think the staff has been excellent I've stayed in plenty of hospitals and over all I'd say I and my son have received our best care here.

- 034 I was very pleased with the service we received.
- 038 Only I feel the interns say one thing about how to treat my baby and then I'm told another way by other nurses or doctor. I felt maybe I need more consistency in that area. Otherwise, the staff is very courteous to my family.
- 040 I don't think anyone could make a situation like this less stressful for anyone no-matter what they did different.
- 049 The staff at Iowa Methodist, nurses and Dr.s., have been very, very supportive to my family & me during our stay here. The daughter involved with this questionnaire was only hospitalized 4 days. Her older sister has been here for 14 days, 10 days on dialysis. We became very attached to the PICU nurses, 4 in particular. They were all there at different times when I cried & needed someone to hold me & offer a shoulder to lean on. I have seen Dr.s. here myself during my 2nd pregnancy, for allergy testing & gynecological services & I have been very pleased with all of them. When our dr. in our community (not in Polk Co.) recommended we bring out daughters here I never hesitated to follow their advice. Our daughter is still on dialysis, for almost 2 weeks. now, & we're becoming very concerned about permanent renal failure. However, I feel right now we are in the best place we can be!
- 048 In the beginning, I was very nervous and scared about being in a large hospital with my son. I've recently relocated to the Des Moines area from a town of 10,000 and was scared that the staff would not be friendly. I'm happy to say that I was wrong. The nurses have been wonderful to Jesse and I and that really makes the stay a lot easier for both of us.
- 050 I am really happy with all of the treatment we have gotten since we have been here. I really want to thank everyone for all of there help and understanding.
- 051 I like to say, they are really great. They care about their work. I'm glad I chose this hospital. They do a good job. It wasn't stressful here I was very relax [sic] and I trust the doctors here. Thanks for making my son well.
- 059 The staff here have been wonderful. But having gone through this situation before, I feel doctors in particular do not know how to calm down and be sensitive to parents who have lost a child or recently lost a child I really feel nurses are much better at relating to patients needs. I really wish that doctors weren't so interested in money or insurance, and I know that is important, but I believe that there should be more aspects than that to look at. Especially when treating or talking to women. I really believe that they could listen more and try to be more understanding.
- 060 I am a nurse at the hospital and the staff treated me with a lot of respect and was very helpful. Everyone was great.
- 062 With small children who cry frequently, I feel private rooms for all patients would be beneficial. Another child's crying or fussing upsets, disturbs, and/or wakes up other children in the room, who in all cases are ill and in most cases need their sleep and rest in a calm atmosphere.
- 063 The staff was fine, that's [sic] wasn't the problem at all.

- 072 Dad would have happily roomed in with child. Pt. almost equally attached to Dad & Mom.
- 073 The staff has always made me feel comfortable.
- 074 The staff is great.
- 082 I felt the staff has been very friendly & helpful with an exception possibly of the dietary staff.
- 088 The second stay in January could have been made better if when I was here the nurse checked in more frequently to see how we were rather than assume since mom was there that I did not need anything some times the need is not physical but emotional. Nurses are trained in communication. Hospitalization of a child is stressful and I think to peek in and say how are you? or do you need to talk to someone? or just a pat on the back does wonders for a parent in this situation. I am not the only person who I know who has been here with a sick child who felt somewhat isolated from the staff. Team work would be wonderful, parents emotional needs, stress level, etc. need to be taken into consideration during the care planning stage.
- 103 I am a moderate smoker. My other children's father had to be home with them. Because Methodist hospital is a smoke free environment it was very difficult for me to get away to smoke. The nurses were always helpful, but because I was there with my child all the time help was never really offered. I would have to ask for help. On my second nights stay at the hospital I had just finished putting my child to bed for the night. He was asleep. I told the nurse that he was asleep, and would she please listen for him as I was going outside to smoke. She said, "yes." however I overheard her tell another nurse that it makes her mad to do that so that people can smoke. Keep in mind this was the first, and only time I ever asked for help. Also my answer to your questionnaire were probably affected by the fact that I smoke, and wasn't able to since Methodist Hospital is indeed a smoke free environment.
- 104 To many different people coming in and calling themselves doctors poking and looking at my son. It was stressful enough for him just being here. All I want is his ped. looking at him or the ped's partners, and when you question what they are doing and why - for them not to get SO defensive. And to remember that a parent has the RIGHT to say when their child has had enough. Sometimes they seem to forget that children feel pain to. As an adult you can tell them you've had enough children sometimes can't.
- 105 The breakfast items in the parents lounge is wonderful. But, I think it would be nice if there was some kind of vending machine or easier access to food other times in the day. My son is a toddler & I do not feel comfortable leaving him (even when he is asleep) to get something to eat unless a relative or nurse is in his room and watching him.

Non Rooming In Comments

- 007 I have three other children at home, no babysitter. And 2 are sick
- 022 Another child at home.
- 035 The first night, my child was sharing a room with another child whose mother was staying the night. I felt uncomfortable. The rest of his stay my child was in his own room and sleeping fine by himself. The nursing staff is really friendly and my son seems to enjoy spending time with them.
- 040 Can't as much as I would like because I have a 3 yr. old Daughter [sic], work fulltime and am a single - parent.
- 046 Because the step - father and I are both here - so we just rented amotel room close by and gave the nurse the phone # to our room in case something comes up.
- 048 The first night I had planned on staying with my son, however at 3:00 am he was still awake and the nurses suggested that I go home so I did and he had fallen asleep about 10 mins. after I left.
- 055 Children at home.
- 056 Because my wife doesn't work And I Do I come every night after work.
- 059 Because I'm 6 months pregnant and have already been hospitalized myself for problems in this pregnancy I'm on moderate bed rest. Plus my daughter was a twin and we lost her sister because I really didn't take it very easy. So I'm trying to hold onto this baby as well.
- 077 No comment.
- 083 I feel I need rest or I'm no good to my ill child. I also have a 4 yr. old, so I feel I need to give him attention also.
- 097 We are staying at the Ronald McDonald House.
- 107 I have another child I have to take care of.